DRAFT

ENVIRONMENTAL ASSESSMENT

DIAMOND K ELK ENTERPRISES RANCH 2

MARCH 1999

Montana Fish, Wildlife & Parks
Region 6
Rural Route 1 - 4210
Glasgow, Montana 59230

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INTRODUCTION

Montana Fish, Wildlife & Parks (FWP) is required to perform an environmental analysis in accordance with the Montana Environmental Policy Act (MEPA) for each proposal for projects, programs, legislation, and other major actions of state government significantly affecting the quality of the human environment (Administrative Rules of Montana [ARM] 12.2.430). FWP uses environmental assessments (EAs) in the game farm licensing process to identify and evaluate environmental impacts of a proposed game farm. EAs also determine whether the impacts would be significant and whether, as a consequence, FWP would perform a more detailed environmental impact statement (EIS).

When preparing an EA, FWP reviews environmental impacts of the Proposed Action, impacts of the No Action Alternative, and impacts of other alternative actions which include recommended and/or mandatory measures to mitigate the project's impacts. A mitigated EA includes alternatives with enforceable requirements (stipulations) which reduce impacts of the Proposed Action. The EA may also recommend a preferred alternative for the FWP decision maker.

This EA is prepared for a proposed game farm (Diamond K Elk Enterprises Ranch 2) near Havre, Montana. Based upon its review of the Diamond K Elk Enterprises Ranch 2 game farm application, FWP has prepared a mitigated EA.

OBJECTIVES

This EA has been prepared to serve the following purposes in accordance with FWP MEPA rules (ARM 12.2.430):

- ensure that FWP uses natural and social sciences in planning and decision making;
- to be used in conjunction with other agency planning and decision-making procedures to make a determination regarding the Proposed Action;
- assist in the evaluation of reasonable alternatives and the development of conditions, stipulations, and modifications to the Proposed Action;
- determine the need to prepare an EIS through an initial evaluation and determination of the significance of impacts associated with the Proposed Action;
- ensure the fullest appropriate opportunity for public review and comment on the Proposed Action;
- examine and document the effects of the Proposed Action on the quality of the human environment.

PUBLIC PARTICIPATION

Public involvement in the EA process includes steps to identify and address public concerns. The Draft EA will be available for public review and comment from April 5, 1999 until 5 pm April 26, 1999 from the Region 6 FWP office. Comments regarding this EA should be submitted to FWP or at the public meeting at the locations specified below.

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PROPOSED ACTION AND ALTERNATIVES

PROPOSED ACTION

FWP received an application on December 8, 1998 from Kim and Cindy Kafka to construct the Diamond K Elk Enterprises Ranch 2 Game Farm at a site approximately 6 miles southwest of Havre, Hill County, Montana (Figure 1). The Proposed Action would place up to 400 adult elk, 10 pronghorn antelope, 10 mule deer, 10 white-tailed deer, 10 bighorn sheep, and 10 mountain goats within the 869-acre enclosure. The primary purpose of the proposed game farm is to breed these species within six different pastures contained within the game farm. Animals of each species would be present on a year-long basis. Occasional fee shooting of game farm animals by the public is also proposed.

The site adjoins the Big Sandy Creek valley and consists of approximately 717 acres of cropland, 143 acres of rangeland, and three farm ponds (9 acres). The game farm would be developed as Phases 1, 2, and 3 consisting of approximately 148, 232, and 489 acres, respectively. The Kafka's residence is located adjacent to the proposed Phase 1 pasture. Cattle would be stocked on pastures at the game farm from late fall through early spring, but would be kept separated from the game farm animals.

The Diamond K Elk Enterprises Ranch 2 Game Farm would be a separate operation from two game farms owned by the applicants and one additional game farm they have proposed. The existing game farms comprise a 40-acre elk game farm adjoining the proposed Phase 1 pasture (Figure 1) (FWP Game Farm License No. 622) and a 1,145-acre elk shooting preserve located 6 miles to the east (Diamond K Ranch Game Farm). The additional proposed game farm consists of a 65-acre elk pasture (Big Sandy Elk Game Farm) located immediately northeast of the proposed Phase 3 pasture (Figure 1).

The purpose of the game farm is to provide breeding stock, meat, antlers, and occasional fee shooting. The applicants would sell and dispose of game farm animals in accordance with Montana game farm and disease control requirements stipulated in Montana statute and administrative rules. Fence construction would be in accordance with requirements of FWP under ARM 12.6.1531. Fencing would consist of 8-foot high, 6-inch mesh game fence supported by wood or steel posts set at least 3 feet into the ground and not more than 24 feet apart. Corner and end posts would be braced. Eleven proposed exterior gates would be equipped with one latching and at least one locking device each. Quarantine and handling facilities would be provided in accordance with Department of Livestock (DoL) requirements.

Figure 1

ALTERNATIVES

One alternative (No Action Alternative) is evaluated in this EA. Under the No Action Alternative, FWP would not issue a license for the Diamond K Elk Enterprises Ranch 2 game farm as proposed. Therefore, no game farm animals would be placed on the proposed game farm area. Implementation of the No Action Alternative would not preclude other activities allowed under local, state and federal laws to take place at the game farm site.

PURPOSE AND NEED OF THE PROPOSED ACTION

The Diamond K Elk Enterprises Ranch 2 game farm would be a private commercial enterprise that would provide breeding stock, meat, and antlers. Occasional fee shooting of elk by the public is also proposed.

ROLE OF FWP AND DEPARTMENT OF LIVESTOCK

FWP is the lead agency in preparing this EA for the proposed project. This document is written in accordance with the Montana Environmental Quality Council (EQC) MEPA Handbook and FWP statutory requirements for preparing an EA under Title 75, Chapter 1, Part 2 Montana Code Annotated (MCA) and FWP rules under ARM 12.2.428 et seq.

FWP shares regulatory responsibilities for new and expanding game farms with the Montana Department of Livestock (DoL). The DoL is responsible for regulating the health, transportation and identification of game farm animals. During the application process, all quarantine area plans and specifications are submitted to the DoL for approval. No game farm licenses are issued without such approval.

AFFECTED ENVIRONMENT

The proposed Diamond K Elk Enterprises Ranch 2 Game Farm would be located on 869 acres approximately 6 miles southwest west of Havre, in Hill County. This section summarizes primary environmental resources in the project area.

LAND RESOURCES

The proposed Diamond K Elk Enterprises Ranch 2 Game Farm is located in an area known as the Tiger Ridge Gas Field. The proposed game farm is on 869 acres of primarily dry crop land and prairie rangeland (Figure 2), and is situated on a bench to the east of Big Sandy Creek. The elevation of the proposed site is about 2,600 feet. Topography of the site is generally level to gently sloping.

The property is currently used to pasture livestock and farm small grains. Three gas wells are also located within the proposed enclosure. These gas wells are plumbed directly into a pipeline collection system, and consist of a well head covered with a small wooden shed. The gas wells are maintained about once per month by the gas production company.

Fig 2

The geology of the area is mainly Quaternary-age glacial ground moraines overlying sandstone, siltstone, and shale of the Cretaceous-age Judith River Formation. The glacial deposits are light-gray, clay-rich to sandy or pebbly till containing scattered erratic boulders. The tills were originally deposited by southeast moving Pleistocene-age glaciers. These tills are poorly drained and alkali-rich and can become gumbo during rains.

Soils present at the proposed site form in glacial till on glaciated uplands. In general, these soils are loam to clay loam in texture, deep (greater than 60 inches thick), well drained, slowly permeable, and well suited to rangeland. Clay content generally ranges from 10 to 45 percent. Calcium carbonate (lime) generally accumulates at relatively shallow depths (3 to 20 inches), ranging up to 15 percent lime by weight. The lime is strongly alkaline. The soils have a high shrink-swell potential in the shallow subsurface horizon (6 to 14 inches) which can cause drainage problems when these soils become excessively wet. Erosion potential is moderate to high by water and erodible to slightly erodible by wind.

WATER RESOURCES

Runoff from the site would most likely occur during late winter and spring snowmelt or major precipitation events. The site drains to Big Sandy Creek through one main gully and several smaller gullies which incise the east slope of the valley. The main gully drains the Phase 1 and 2 pastures and then cuts northward to the immediate east of the Phase 3 pasture (Figure 1). The majority of the Phase 3 pasture drains northeast to the main gully, while the remainder drains northwest through the smaller gullies leading directly to the creek.

An earthen dam within the Phase 1 enclosure blocks the main gully and produces the largest (approximately 7 acres) of three farm ponds at the site. This pond is used by waterfowl and is bordered by vegetation typical of wetlands. The Proposed Action would fence the pond out of the surrounding pastures (Figure 1) to allow the potential to control access to the pond by game farm animals and cattle. Following snowmelt or precipitation events, the pond may extend back into the southeast enclosure of the Phase 1 pasture.

The other two farm ponds are less than 1 acre in size. One is an excavated impoundment in the northeast enclosure of the Phase 1 pasture and the other is located behind a small earthen dam on a minor drainage located on the east side of the Phase 3 pasture (Figure 1). Water for the elk would be obtained from the farm ponds and/or water tanks filled with water from Big Sandy Creek under the applicants surface water right.

Records on-file with the Montana Department of Natural Resources and Conservation indicate that six water wells are located on neighboring properties within 1 mile of the site. The nearest of these is at the home of the applicants' sister, which adjoins the northeast corner of the Phase 1 pasture. The other five wells are located approximately 0.9 mile south, east, and north of the proposed game farm boundary. Well construction information indicates that the sister's well is 135 feet deep with a static water level at 67 feet below grade. This well appears to be typical of water well construction in this area.

VEGETATION RESOURCES

The proposed 869-acre game farm is located on relatively level agricultural land adjacent to, but above the flood plain of Big Sandy Creek. The game farm is comprised of 717 acres of cropland (83%), 143 acres of rangeland (16%), and 9 acres of farm ponds and associated wetlands (1%) (Figure 2). Current use of this site is to grow small grain crops and to pasture cattle following the harvest of the crops. The majority of rangeland vegetation consists of introduced plants such as alfalfa, crested wheatgrass, and pubescent wheatgrass. Native vegetation remains only in uncultivated areas along the edges of the agricultural fields. Native vegetation is dominated by blue grama, needle-and-thread grass, western wheatgrass, plains muhly, and prairie sandgrass. Wetlands surround the farm pond that impounds surface water runoff in the main gully that crosses the game farm. Vegetation within the wetland area consists of sedges, rushes, and plains cottonwood. Native vegetation has been eliminated from the cropland area.

Crops planted in the agricultural area include wheat, barley, and oats/peas. Forage production in the tame pasture rangeland site is estimated at 1,500 pounds per acre and forage production in the cultivated field when used for oat/pea hay averages about 3,000 pounds per acre. Forage production in the wetland areas would be variable depending upon precipitation and runoff. Average productivity might be around 2,000 pounds per acre. Total forage production at the proposed game farm site is estimated at 1,308,000 pounds. Should the cultivated area be planted to perennial introduced vegetation, productivity in the cropland area would likely decline to approximately 1,500 pounds per acre. There are no federally-listed threatened or endangered plant species expected to occur within the proposed game farm site. The proposed game farm site does contain suitable habitat for noxious weeds such as spotted knapweed, leafy spurge, Canada thistle and mullein, but these species were not evident during the site inspection.

WILDLIFE RESOURCES

The proposed game farm site represents low density mule deer, white-tailed deer, and pronghorn antelope habitat (Figure 3). These species use the game farm area on an occasional basis. Approximately 150-200 wild elk occur in the Bear Paw Mountains approximately 30 miles southeast of the game farm site. About once a year, a wild elk or moose is reported to travel along Big Sandy Creek. There are no known migration corridors or critical winter range for any big game species in this area. Bighorn sheep also occur along the river breaks south of the Bear Paw Mountains and occasionally, a ram may travel into the Bear Paw Mountains. This herd has been reintroduced to the Missouri River breaks during the past 20 years, and has done very well with approximately 500 sheep living on either side of the River. This is now one of Montana's largest bighorn sheep herds. Due to the distance between this herd and the proposed game farm and the unsuitable bighorn sheep habitat in this area, there is little likelihood of contact.

This area is also used by sharp-tailed grouse, gray partridge, and pheasants. These birds primarily winter in shelter belts near the Kafka ranch headquarters and disperse from this area during early spring. In addition, a small impoundment near the proposed game farm site is used by large numbers of ducks, geese and swans during migratory periods. Some Canada geese and mallards nest in the vicinity of the farm pond during spring. This area could potentially be used by migratory bald eagles, and peregrine falcons, (federally-listed bird species), but there are no known resident threatened or endangered wildlife species.

Fig 3

LAND USE

The proposed game farm is predominantly surrounded by sparsely populated private rangeland and cropland (Figures 2 and 4). The applicants' home is located at the existing 40-acre game farm, adjacent to the proposed Phase 1 pasture, and the home of the applicants' sister adjoins the northeast corner of the Phase 1 pasture (Figure 1). Seven neighboring residences have been identified within 1 mile of the site.

The southwest corner of the Phase 2 pasture adjoins a section of rangeland owned by the State of Montana. Additional state land about 1 mile east of the Phase 1 pasture is the site of historic Fort Assinniboine and is currently used as an agricultural experiment station (Figure 2). One-eighth section of U.S. Bureau of Land Management land is located 0.5-mile southwest of the Phase 3 pasture. Public and private lands in this area are commonly accessible to local hunters seeking pheasants, deer, antelope, and coyotes.

CULTURAL RESOURCES

A file search conducted by the State Historic Preservation Office (SHPO) indicate that seven cultural properties exist on or immediately adjacent to the proposed game farm. These cultural features include rock cairns, tipi rings, lithic scatters, firehearths or roasting pits, and/or historic homesteads or farms.

ENVIRONMENTAL CONSEQUENCES

Only primary resources that have potential adverse effects from the Proposed Action are summarized in this section. A detailed discussion of environmental consequences is contained in *Part II* of this EA.

LAND RESOURCES

Impacts to soil and land resources as a result of the Proposed Action are expected to be slight. There are three major concerns related to soil and land resources: 1) relatively high susceptibility to water erosion for each of the different soil types; 2) high susceptibility of certain soils to wind erosion; and 3) relatively high clay percentages resulting in slow permeability of the soils.

The first two concerns, water and wind erosion potential, can be mitigated by maintaining an adequate vegetative cover to reduce potential impacts to soil productivity. The last major concern, slow permeability of the soils, can cause gumbo conditions when it rains, which can account for considerable soil erosion when roads and paths are used under these conditions. There would also be an impact associated with the effects of pasturing the elk on wet soils. This can result in excessive compaction and reduce overall soil productivity.

WATER RESOURCES

Increased runoff and erosion could occur in some areas of the game farm if the stocking rate exceeds the carrying capacity of the pasture and vegetative cover is diminished. If vegetative cover is reduced significantly, the game farm operation could meet the definition of an "animal feeding operation" (ARM 17.30.1304(3)). If water containment structures are needed on the project site to control runoff and do not have the capacity for the 25-year, 24-hour storm, a "concentrated animal feeding operations" (CAFO)

Figure 4

permit must be obtained to permit the discharge. A CAFO permit could eventually be required for the Diamond K Enterprises Ranch 2 Game Farm operation if the proposed maximum stocking rate of 400 adult elk, 50 adult game farm animals of other species, and up to 400-450 adult cattle is realized and there is extensive loss of vegetative cover. Filling or dredging of any waters of the U.S. (e.g., culvert installation) may require a "404 Permit" from the U.S. Army Corps of Engineers (COE).

Domestic elk fecal matter and nutrient-enriched water may have a minor effect on the quality of groundwater and surface water in the vicinity of the site. Use of the 869-acre site to winter up to 400-450 cattle in combination with its use by up to 450 game farm animals could produce large quantities of excess nutrients and manure. Nutrient-laden runoff from the site could potentially enter Big Sandy Creek during periods of snowmelt or precipitation which produce flow out of the farm ponds and into the main gully draining the site. Effects of such a discharge from the site would be moderated by the high flow rates that would occur in Big Sandy Creek. The closest neighboring water supply well is in excess of 100 feet deep and is not likely to be affected by the game farm. Potential transport of pathogens from the game farm into Big Sandy Creek is discussed in the following *Risk/Health Hazards* section.

VEGETATION RESOURCES

The Proposed Action would place up to 400 adult elk, 10 pronghorn antelope, 10 mule deer, 10 white-tailed deer, 10 bighorn sheep, and 10 mountain goats within the 869-acre enclosure. These species would use the proposed game farm on a year-long basis. The proposed game farm site would not supply all forage requirements of the game farm animals on an annual basis. In addition, forage productivity would likely decline under year-long continuous grazing and there would probably be unvegetated areas where the game farm animals concentrate. The proposed game farm stocking rate would be 2.2 acres per adult elk and 17.4 acres per adult animal of the other five species. Total overall stocking rate would be 1.9 acres per adult animal. Considerable supplemental feed would be required to sustain the game farm animals on a year-long basis.

An existing use of a portion of the proposed game farm site is to winter 400 to 450 adult female cattle. At the start of the wintering period, 300-350 calves are held here until their sale, and at the end of the wintering period, the adult cows calve on this site. This practice with cattle would be continued on this site once the game farm is fenced and licensed. Although the vegetation is dormant in the winter and the ground is generally frozen, the concentration of over 800 large ungulates into six game farm pastures totalling 869 acres would further impact the vegetation and soils. Under the existing conditions, cattle are not present from spring through early fall, and the area is used to grow pasture, hay, and other agricultural crops during the growing season. Under dual use there would be no growing season rest for this area. Accumulation of manure and loss of vegetative cover could become a problem in some areas of the game farm.

There are no plans to alter the native vegetation remaining on the edges of the cropland or to replant the pasture currently supporting tame pasture grasses. However, the cropland would be seeded to alfalfa, crested wheatgrass and pubescent wheatgrass to establish a perennial vegetative cover. Areas where elk and other game farm animals are fed or handled may lose vegetative cover or fail to develop vegetative cover, but this would be restricted to a small portion of the game farm. The proposed stocking level of 1.9 animals per acre on a year-long basis is high for a dryland range site such as this. The dual use of this site by 400-450 adult cattle during winter would further impact vegetation resources. This

stocking level will exert a significant influence on both the tame pasture and native grassland sites. Highly palatable plants would likely decrease in abundance while unpalatable plants would increase.

Although noxious weeds were not apparent at this site, disturbed sites around feeding areas or handling facilities would provide an opportunity for weeds to become established. Weed seeds could potentially be imported into the area with feed for the elk and other game farm animals. The intensive stocking rate would also encourage the establishment of weeds.

WILDLIFE RESOURCES

The proposed game farm site is not located within any critical big game winter range, nor is it located along a migration corridor. This specific site receives only occasional use by mule deer, white-tailed deer, and pronghorn antelope. The potential impacts on big game species would largely be limited to these few deer and antelope that reside in this general area. Fencing of 869 acres would be a minor impact because only a few wild deer and antelope live in the general area of the proposed game farm. This area has been extensively impacted by agriculture for most of this century, and availability of agricultural habitat is not a limiting factor for these deer and antelope. Wild elk can potentially pass through this area on occasion and could be attracted to the game farm especially during the rut. Bulls fighting through the fence and damaging the fence has been reported elsewhere. The proposed game farm fence would be located primarily on level land and would cross slight slopes (less than 10 degrees) in only a few areas. There would only be minimal opportunity for wild ungulates to enter the game farm because of the excellent characteristic for fencing, and low density of wild deer, antelope and elk. Should deer or other wild ungulates enter the game farm, they would likely be destroyed rather than released back to the wild. These impacts may affect individuals but not populations. There is very little potential for large predators to pass through this area and be attracted to the animals in the enclosure.

Despite their low numbers, deer and pronghorn antelope do pass through this area and the fencing of 869 acres is expected to alter their daily or seasonal movement patterns. The effect of the fence as a passage barrier would be diminished somewhat because the game farm would be fenced as two separate units of 380 acres (Phase 1 & 2 pastures) and 489 acres (Phase 3 pasture) (Figure 1). There would be a small opening between the northwest corner of the Phase 1 & 2 pasture and the southeast corner of the Phase 3 pasture. The Phase 1 & 2 pasture would be contiguous with the existing 40-acre game farm thereby forming a 420-acre enclosed area. In most cases, a deer or an antelope attempting to travel through this area would need to walk 1.0 to 1.5 miles to reach the same location that could be obtained by walking 0.5 mile if the fence were not present. In addition, due to the configuration of the proposed game farm, there would be five sides with at least 1 mile of continuous fence runs, and there would be one side with a internal right angle 0.5 mile from the exterior corners. Added to this maze of fencing is a proposed 65-acre game farm located immediately northeast of the Phase 3 pasture, and the Kafka ranch headquarters at the northeastern corner of the Phase 1 pasture.

During snow free periods, distances required to circumnavigate (1.0 to 1.5 miles) the game farm are within the range of daily movement of deer and pronghorn. The topography is relatively level and wild ungulates would not be forced to travel through unfavorable habitat or terrain. However, during winter with periods of drifted snow, travel around the game farm fence might become more difficult and coyotes may be able to take advantage of the fence barrier to aid in capturing deer or antelope. The proposed game farm fence has the potential to influence individual wild big game animals, but would not effect overall populations of deer and antelope in this general area.

RISK/HEALTH HAZARDS

An existing use of a portion of the proposed game farm site is to winter 400 to 450 adult female cattle. At the start of the wintering period, 300-350 calves are held here until their sale, and at the end of the wintering period, the adult cows calve on this site. Under the existing conditions, cattle are not present from spring through early fall, and the area is used to grow pasture, hay, and other agricultural crops during the growing season. This practice of wintering cattle would be continued on this site once the game farm is fenced and licensed. Under dual use there would be no growing season rest for this area, and accumulation of manure and loss of vegetative cover could become a problem in some areas of the game farm. Diseases such as brucellosis are most easily transmitted during the calving period when afterbirth is present on the ground. However, it is assumed that cattle and game farm animals would be confined to separate pastures during periods of dual use which should minimize contact between the various species. In addition, the elk and cattle are assumed to be brucellosis and tuberculosis free. The accumulation of manure would result in conditions that promote the spread of parasites and diseases.

The risk of disease being passed from game farm elk to domestic livestock and wildlife can also be reduced if internal fence integrity is maintained and the mitigation measures described in this EA are followed. Potential for disease transmission to domestic livestock and wildlife from game farm animals is also mitigated through DoL disease testing requirements. All animals to be placed on this game farm are required to be tested for tuberculosis at the time of import, purchase and/or transportation to the game farm. A test for brucellosis is also required for all game farm animals that are sold or moved within the state, and is required for all game farm animals imported into Montana. Montana is presently a tuberculosis-free and brucellosis-free state (i.e., these diseases have not been diagnosed in domestic livestock). Chronic wasting disease (CWD) also has been detected in game farm elk in three states and one Canadian province, but the mode of transmission is unknown and there is no test for this disease in living animals. CWD has been a known wildlife disease for 30 years in Colorado and Wyoming. There is no evidence of CWD transmission to domestic livestock or humans. Each game farm is required to have access to an isolation pen (quarantine facility) on the game farm or approved quarantine plan to isolate any animals that are imported or become ill. The state veterinarian can require additional testing and place herds under strict quarantine should problems arise. Implementation of best management practices for animal husbandry by the licensee are necessary to ensure the health status of the herd.

There is a potential for transmission of water-borne disease pathogens, if present, to be transported downstream from the game farm in Big Sandy Creek. However, this risk would be minor because of game farm animal disease testing requirements and because game farm runoff into Big Sandy Creek would occur only during late winter snowmelt or major precipitation events. In addition, water in Big Sandy Creek is not expected to be used for human consumption. While water provides a favorable environment for diseases such as brucellosis, the dilution factor associated with flowing surface water (i.e., Big Sandy Creek during major runoff events) makes it an unlikely means of transmission.

If tuberculosis or brucellosis were to be transmitted from domestic elk and to wild elk and deer, hunters field dressing wild elk or deer would be subject to some risk of infection. Veterinarians and meat cutters working with diseased game farm animals are at risk of becoming infected with brucellosis or tuberculosis. Routine brucellosis and tuberculosis testing requirements for game farm animals offer a measure of surveillance to minimize risk to human health.

Seven neighboring residences have been identified within 1 mile of the site. These neighbors comprise: three homes located on the bluff west of the Big Sandy Creek Valley, about 0.25-mile northwest of the Phase 3 pasture; one home with ranch buildings located in the valley bottom, about 0.25-mile north of the pasture, one home located on the east bluff of the valley, about 0.9-mile north of the pasture; one home adjoining Highway 87, about 0.5-mile southeast of the Phase 1 and 2 pastures; and one home located 0.25-mile west of Highway 87 and about 0.9-mile south of the Phase 2 pasture. In addition, unimproved county roads are located on the southern and eastern boundaries of the Phase 3 pasture and on the northern, western, and southern boundaries of the Phase 1 & 2 pasture. These nearest residences and the county roads are within the average maximum ranges for high-powered big game rifles. The residence to the north of the proposed Phase 3 pasture is located in a low lying area and is at least partly shielded by topography. Other neighboring residences would be exposed to an errant bullet as would anyone traveling public right-of-ways bordering the game farm pastures.

CULTURAL RESOURCES

According to the Montana State Historic Preservation Office, there is a possibility that the Proposed Action may impact cultural sites on the site. SHPO recommends that a reconnaissance survey be conducted prior to project initiation to determine if sites exist and if they would be affected.

CUMULATIVE EFFECTS

The Proposed Action could result in potential impacts that are cumulatively significant. There is an existing 40-game farm at the Kafka ranch headquarters adjacent to the Phase 1 & 2 pasture. There also is a proposal to build a third game farm in this immediate vicinity that would create a 65-acre enclosure. Cumulatively there would be 975 acres of land within a 2.5 square mile area fenced to exclude wild ungulates. Within these enclosures there could potentially be 480 adult elk plus 10 pronghorn antelope, 10 mule deer, 10 white-tailed deer, 10 bighorn sheep and 10 mountain goats. The combined game farms would result in 530 animals being confined on 975 acres on a year-long basis. In addition, 400-450 adult cattle would continue to be wintered within the proposed game farm. This large number of animals, diversity of species (3 cervids, 4 bovids) and dual use of the game farm by cattle and game farm animals increases the probability of a disease problem and the risk that pathogens might leave the game farm areas via surface flow of water. There would also be increased opportunity for wild ungulates to come in contact with domestic big game species because of the considerable length of perimeter fence (approximately 6.5 miles) associated with the combined game farms and the diversity of species held in confinement.

EA CONCLUSION

MEPA and game farm statutes require FWP to conduct an environmental analysis for game farm licensing as described in the *Introduction* of this *Summary* section (p. 1). FWP prepares EAs to determine whether a project would have a significant effect on the environment. If FWP determines that a project would have a significant impact that could not be mitigated to less than significant, the FWP would prepare a more detailed EIS before making a decision.

Based on the criteria evaluated in this EA, an EIS would not be required for the Diamond K Elk Enterprises Ranch 2 Game Farm. The appropriate level of analysis for the Proposed Action is a mitigated EA because all impacts of the Proposed Action have been accurately identified in the EA, and all identified significant impacts would be mitigated to minor or none.

MITIGATION MEASURES

The mitigation measures described in this section address both minor and significant impacts associated with the proposed Diamond K Elk Enterprises Ranch 2 game farm. FWP would require stipulations to mitigate all potentially significant impacts resulting from the Proposed Action. Potential minor impacts from the Proposed Action are addressed as mitigation measures that are strongly recommended to remain in compliance with state and federal environmental laws, but are not required.

REQUIRED STIPULATIONS AND MITIGATIONS

The following stipulations are imposed by FWP for the Diamond K Elk Enterprises Ranch 2 Game Farm and are designed to mitigate significant impacts identified in the EA to below the level of significance:

(1) *Provide escort to anyone entering the game farm enclosure (e.g., gas pipeline personnel) when game farm animals are present.*

This stipulation is imposed to mitigate potential risk to wildlife posed by the proposed game farm. Risk to wildlife from contact between game farm animals and wild game is potentially significant due to the site being located in an area currently utilized by wild game.

(2) *Shooting in the game farm enclosure using high-powered rifles must not occur in the direction of residences or the section of Highway 87 located within a 1-mile radius of the game farm. A guide or representative of the ranch familiar with the terrain must accompany each harvester to be sure shooting does not occur toward the nearby residences or highway.*

This stipulation is imposed to mitigate potentially significant risk to public health and safety due to the proximity of residences and the highway to the game farm site. There can not be shooting on, from, or across any public road (87-3-101, MCA). The requirement to have a guide with each elk harvester to assure that shooting does not occur in a direction toward the residences and highway would significantly reduce the chances of impacting human health and safety.

RECOMMENDED MITIGATION MEASURES

The following recommended mitigation measures address minor impacts identified in the Diamond K Elk Enterprises Ranch 2 Game Farm EA for resources that have the most potential affects from the Proposed Action:

Land Resources

- Uncoated steel posts may corrode with time in the alkaline soils; therefore, coated posts or other noncorrosive materials should be considered.

- Maintain a reasonable stocking rate within the game farm enclosure to minimize changes in soil structure and potential increases in erosion from disturbed ground.

Air Resources

- Dust management activities include spraying water on unpaved roads during the dry season, vegetating exposed ground where possible, protecting fill piles from wind erosion, and limiting ground disturbance to only the area necessary to complete the job.

- Employ the following best management practices (BMPs) to reduce odor problems if they occur: (1) incorporate waste into soil quickly by plowing or discing; (2) spread waste during cool weather or in the morning during warm, dry weather; and (3) properly dispose of animal carcasses. Carcasses should not be disposed of in or adjacent to water bodies, roads, and ditches.

Water Resources

- Maintain a reasonable stocking rate in the game farm area to mitigate potential impacts from runoff and fecal matter. Potential water quality impacts also could be minimized by disposing dead animals and excess fecal material at a site that is isolated from surface water and groundwater (disposal must meet county regulations for solid waste). Game farm animal gut piles would be disposed of in a gas-fired incinerator.

- For any areas that may have erosion and sedimentation problems, utilize best management practices (BMPs) where surface water could enter gullies draining to Big Sandy Creek. The BMPs may include earth berms, straw bale dikes, vegetative buffer zones, and/or silt fences.

Vegetation Resources

- Monitor the proposed game farm site for invasion of noxious weeds and treat affected areas in a timely manner.

- Supplemental feed and minerals should be provided to the elk and other game farm animals on a seasonal basis to reduce excessive grazing on preferred pasture plants.

Wildlife Resources

- Store hay, feed, and salt away from exterior fences or enclose in buildings.

- Feed game farm animals at interior portions of the enclosure and not along the perimeter fence.

- Properly dispose of dead animals and isolate excess fecal material and waste feed from potential contact with humans, domestic animals, and wild animals.

- Inspect exterior game farm fence on a regular basis and immediately after events likely to damage fence to ensure its integrity with respect to trees, frost-heaving, corrosion, burrowing animals, predators, and other game animals.

- If fence integrity or ingress/egress becomes a problem, adjust the fence as necessary, including: double fencing, electrification, additional post support, replacing damaged posts, or increased fence height.

- During winters of exceptional snow cover, remove snow on either side of the perimeter fence to prevent ingress/egress, or keep game farm animals away from fence areas where significant snow buildup occurs.

Risk/Health Hazards

- To reduce the concentration of disease pathogens present in feces, at birthing sites, and in the soil to non-virulent levels, impose a 2-week waiting period between removal of game farm animals from a pasture and placement of cattle into a pasture. A similar 2-week waiting period should be imposed between removal of cattle from a pasture and placement of game farm animals into a pasture.

- Risk of disease epidemic or heavy parasite infections among domestic elk can be minimized by maintaining a reasonable domestic elk stocking rate in relation to the enclosure size, periodic removal of manure from concentration areas, and development of a disease immunization and parasite treatment protocol as applicable to domestic elk.

Cultural Resources

- Mitigate impacts to cultural resources by stopping work in the area of any observed archeological artifact. Report discovery of historical objects to: Montana Historical Society, Historic Preservation Office. If work stoppage in the area containing observed artifacts is not possible, record the location and position of each object, take pictures and preserve the artifact(s).

PART I. GAME FARM LICENSE APPLICATION

ENVIRONMENTAL ASSESSMENT CHECKLIST

Montana Fish, Wildlife & Park's authority to regulate game farms is contained in sections 87-4-406 through 87-4-424, MCA and ARM 12.6.1501 through 12.6.1519.

1. **Name of Project:** Diamond K Elk Enterprises Ranch 2 Game Farm

   Date of Acceptance of Completed Application: January 4, 1999

2. **Name, Address and Phone Number of Applicant(s):**

   Kim & Cindy Kafka and family
   HC 30, Box 302
   Havre, MT 59501
   (406) 395-4556

3. **If Applicable:**

   Estimated Construction/Commencement Date: Spring 1999 or upon approval

   Estimated Completion Date: Three years from start date

   Is this an application for expansion of existing facility or is a future expansion contemplated?

   This is an application for a new facility.

4. **Location Affected by Proposed Action (county, range and township):**

   Hill County, 869 acres in the following:
   N½, SW¼ Section 30; T32N, R15E
   E½, SW¼, SE¼ NW¼ Section 24; T32N, R14E
   E½ SE¼ SE¼ Section 23; T32N, R14E

5. **Project Size:** Estimate number of acres that would be directly affected that are currently:

   (a) Developed:
   residential....._____ acres
   industrial....._____ acres

   (b) Open Space/Woodlands/Areas....___ acres

   (c) Wetlands/Riparian Areas..... 9____ acres

   (d) Floodplain..._____ acres

   (e) Productive:
   irrigated cropland._____ acres
   dry cropland.....717___ acres
   forestry.....143_____ acres
   rangeland....._____ acres
   other....._____ acres

6. Map/site plan:

The following maps are included in the introductory summary of this EA:

Figure 1: Site Map
Figure 2: Land Use and Land Cover
Figure 3: Big Game Distribution
Figure 4: Land Ownership

7. Narrative Summary of the Proposed Action or Project including the Benefits and Purpose of the Proposed Action:

FWP received an application on December 8, 1998 from Kim and Cindy Kafka to construct the Diamond K Elk Enterprises Ranch 2 Game Farm at a site approximately 6 miles southwest of Havre, Hill County, Montana (Figure 1). The Proposed Action would place up to 400 adult elk, 10 pronghorn antelope, 10 mule deer, 10 white-tailed deer, 10 bighorn sheep, and 10 mountain goats within the 869-acre enclosure. The primary purpose of the proposed game farm is to breed these species within six different pastures contained within the game farm. Animals of each species would be present on a year-long basis. Occasional fee shooting of game farm animals by the public is also proposed.

The site adjoins the Big Sandy Creek valley and consists of approximately 717 acres of cropland, 143 acres of rangeland, and three farm ponds (9 acres). The game farm would be developed as Phases 1, 2, and 3 consisting of approximately 148, 232, and 489 acres, respectively. The Kafka's ranch headquarters and residence is located adjacent to the proposed Phase 1 pasture. Cattle would be stocked on pastures at the game farm from late fall through early spring, but would be kept separated from the game farm animals.

The Diamond K Elk Enterprises Ranch 2 Game Farm would be a separate operation from two game farms owned by the applicants and one additional game farm they have proposed. The existing game farms comprise a 40-acre elk game farm adjoining the proposed Phase 1 pasture (Figure 1) (FWP Game Farm License No. 622) and a 1,145-acre elk shooting preserve located 6 miles to the east (Diamond K Ranch Game Farm). The additional proposed game farm consists of a 65-acre elk pasture (Big Sandy Elk Game Farm) located immediately northeast of the proposed Phase 3 pasture (Figure 1).

The purpose of the game farm is to provide breeding stock, meat, antlers, and occasional fee shooting. The applicants would sell and dispose of game farm animals in accordance with Montana game farm and disease control requirements stipulated in Montana statute and administrative rules. Fence construction would be in accordance with requirements of FWP under ARM 12.6.1531. Fencing would consist of 8-foot high, 6-inch mesh game fence supported by wood or steel posts set at least 3 feet into the ground and not more than 24 feet apart. Corner and end posts would be braced. Eleven proposed exterior gates would be equipped with one latching and at least one locking device each. Quarantine and handling facilities would be provided in accordance with DoL requirements.

8. **Listing of any other Local, State or Federal agency that has overlapping or additional jurisdiction:**

(a) Permits:

Agency Name	Permit	Approval Date and Number
Department of Livestock	approval of quarantine and handling facility	Pending

(b) Funding:

Agency Name	Funding Amount
none	

(c) Other Overlapping or Additional Jurisdictional Responsibilities:

Agency Name	Type of Responsibility
Montana Department of Livestock	disease control
Montana Department of Environmental Quality (DEQ)	water quality, air quality waste management
Montana State Historical Preservation Office (SHPO)	cultural resources
Montana Department of Natural Resources and Conservation (DNRC)	water rights
Natural Resource Conservation Service (NRCS)	soil conservation
Hill County Conservation District	stream crossings
U.S. Army Corps of Engineers (COE)	wetlands
Hill County Weed Control District	weed control

9. **List of Agencies Consulted During Preparation of the EA:**

Montana Department of Livestock

Montana Department of Environmental Quality

Montana State Historical Preservation Office

Montana Department of Natural Resources and Conservation

U.S. Department of Agriculture, Natural Resource Conservation Service

Hill County Conservation District

REFERENCES:

Kafka, Kim and Cindy, 1998. Application for Diamond K Elk Enterprises Ranch 2 Game Farm dated December 3, 1998.

PART II. ENVIRONMENTAL REVIEW

This section of the EA presents results of an environmental review of the proposed Diamond K Elk Enterprises Ranch 2 Game Farm (Proposed Action). The assessment evaluated direct and indirect impacts and cumulative effects of the Proposed Action on the following resources of the physical environment: land, air, water, vegetation, fish and wildlife; and the following concerns of the human environment: noise, land use, human health risk, community impacts, public services and taxes, aesthetics and recreation, and cultural and historical resources. Impacts were determined to fall in one of four categories: unknown, none, minor and significant. For the purposes of this EA, and in accordance with ARM 12.2.429 through 12.2.431, these terms are defined as follows:

EA DEFINITIONS

Cumulative Effects: Collective impacts on the physical and human environment of the Proposed Action when considered in conjunction with other past and present actions related to the Proposed Action by location or generic type. Related future actions must also be considered when these actions are under concurrent consideration by any state agency through pre-impact statement studies, separate impacts statement evaluation, or permit processing procedures.

Unknown Impacts: Information is not available to facilitate a reasonable prediction of potential impacts.

Significant Impacts: A determination of significance of an impact in this EA is based on individual and cumulative impacts from the Proposed Action. If the Proposed Action results in significant impacts that can not be effectively mitigated, FWP must prepare an EIS. The following criteria are considered in determining the significance of each impact on the quality of the human environment:

- severity, duration, geographic extent and frequency of occurrence of the impact;
- probability that the impact would occur if the Proposed Action occurs;
- growth-inducing or growth-inhibiting aspects of the impact, including the relationship or contribution of the impact to cumulative effects;
- quantity and quality of each environmental resource or value that would be affected, including the uniqueness and fragility of those resources or values;
- importance to the state and to society of each environmental resource or value that would be affected;
- any precedent that would be set as a result of an impact of the Proposed Action that would commit FWP to future actions with significant impacts or a decision in principle about such future actions; and
- potential conflict with local, state, or federal laws, requirements, or formal plans.

Reasonable Stocking Rate: The density of animals appropriate to maintain vegetative cover in pasture condition that minimizes soil erosion from major precipitation events and snowmelt. The methodology for determining reasonable stocking rate is presented under the evaluation for *Vegetation Resources*, in Section 4 of the Checklist portion of this EA document. Factors to consider in determining an overall reasonable stocking rate include vegetation type and density, ground slope, soil type, and precipitation.

PHYSICAL ENVIRONMENT

1. LAND RESOURCES Would the Proposed Action result in:	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED	COMMENT INDEX
	UNKNOWN	NONE	MINOR	SIGNIFICANT		
a. Soil instability or changes in geologic substructure?		X				
b. Disruption, displacement, erosion, compaction, moisture loss, or over-covering of soil which would reduce productivity or fertility?			X		Yes	1(b)
c. Destruction, covering or modification of any unique geologic or physical features?		X				
d. Changes in siltation, deposition or erosion patterns that may modify the channel of a river or stream or the bed or shore of a lake?		X				

AFFECTED ENVIRONMENT:

The proposed Diamond K Elk Enterprises Ranch 2 Game Farm is located about 6 miles southwest of Havre, Montana in an area known as the Tiger Ridge Gas Field. The proposed game farm is on 869 acres of primarily dry crop land and prairie rangeland, and is situated on a bench to the east of Big Sandy Creek. The elevation of the proposed site about 2,600 feet. Topography of the site is generally level to gently sloping.

The property is currently used to pasture livestock and farm small grains. Three gas wells are also located within the proposed enclosure. These gas wells are plumbed directly into a pipeline collection system, and consist of a well head covered with a small wooden shed. The gas wells are maintained about once per month by the gas production company.

The geology of the area is mainly Quaternary-age glacial ground moraines overlying sandstone, siltstone, and shale of the Cretaceous-age Judith River Formation. The glacial deposits are light-gray, clay-rich to sandy or pebbly till containing scattered erratic boulders. The tills were originally deposited by southeast moving Pleistocene-age glaciers. These tills are poorly drained and alkali rich and can become gumbo during rains (Kerr, et.al., 1957; Pecora, et.al., 1957).

Soil information for the area was obtained from the Natural Resource Conservation Service's (NRCS) field office in Havre. Soil maps were provided by the NRCS from working maps of the Hill County unpublished soil survey (NRCS, 1999). Data on the physical and chemical characteristics of soil types were obtained from the NRCS soil database.

Ten different soil map units, consisting of soil complexes or associations of nine different soil series, were mapped on the proposed property by the NRCS. The major soil series present include the Phillips, Kevin, Telstad, Joplin, Hillon, and Scobey. About 93 percent of the proposed game farm area is mapped as four different map units. These include Phillips-Kevin complex, 0 to 4 percent slopes (about 50% of the property); Telstad-Joplin loams, 0 to 4 percent slopes (about 20% of the property); Scobey-Kevin clay loams, 0 to 4 percent slopes (about 13% of the property); and Kevin-Hillon clay loams, 2 to 8 percent slopes (about 10% of the property).

Soils present at the proposed site form in glacial till on glaciated uplands. In general, these soils are loam to clay loam in texture, deep (greater than 60 inches thick), well drained, slowly permeable, and well suited to rangeland. Clay content generally ranges from 10 to 45 percent. Calcium carbonate (lime) generally accumulates at relatively shallow depths (3 to 20 inches), ranging up to 15 percent lime by weight. The soils with subsurface lime are strongly alkaline. The Kevin and Scobey soils have a high shrink-swell potential in the shallow subsurface horizon (6 to 14 inches) which can cause drainage problems when these soils become excessively wet. Erosion potential is moderate to high by water and erodible to slightly erodible by wind. Wind erosion is the main limitation if the soils are used for cultivated crops (SCS, 1986).

PROPOSED ACTION:

1(b) The Proposed Action plans to place up to 400 adult elk and up to 50 adults of other game farm animals in the 869 acre enclosure. Impacts to soil and land resources as a result of the Proposed Action are expected to be slight. There are three major concerns related to soil and land resources: 1) the relatively high susceptibility to water erosion for each of the different soil types; 2) the high susceptibility of the Hillon soils to wind erosion; and 3) the relatively high clay percentages resulting in relatively slow permeability of the soils.

The first two concerns, water and wind erosion potential, can be mitigated by maintaining an adequate vegetative cover to reduce potential impacts to soil productivity. The last major concern, slow permeability of the soils, can cause gumbo conditions when it rains, which can account for considerable soil erosion when roads and paths are used under these conditions. There will also be an impact associated with the effects of pasturing the elk on wet soils. This can result in excessive compaction and reduce overall soil productivity. These impacts can be mitigated by maintaining a reasonable stocking rate and managing use during periods of wet soil conditions.

NO ACTION:

Under the No Action Alternative, the current condition of the property would not change. Impacts to the soil resource under the No Action Alternative would likely be similar to the Proposed Action in the event dry land farming and pasturing of livestock continues.

CUMULATIVE EFFECTS:

As the proposed site and surrounding area are used intensively for agricultural production, the cumulative effect to soil resources of using the proposed site as a game farm, including the nearby existing and proposed game farms is expected to be slight. The proposed permit area does not contain any unique or significant soil or land resources that would be lost due to the proposed land use change.

COMMENTS:

Required Stipulations: None.

Recommended Mitigation Measures:

- The moderate to strongly alkaline reaction of the soil should be considered when designing the exterior fence. Uncoated steel posts may corrode with time in these soils.

- Maintain a reasonable stocking rate within the game farm enclosures to minimize changes in soil structure and potential increases in erosion from disturbed ground. A "reasonable stocking rate" is

defined under *EA Definitions* on the first page of *Part II - Environmental Review* of this EA; additional information regarding a reasonable stocking rate is provided under Section 4 (*Vegetation*) of *Part II* in this EA.

REFERENCES:

J.H. Kerr, W.T. Pecora, D.B. Stewart, and H.R. Dixon. 1957. Preliminary Geologic Map of the Shambo Quadrangle, Bearpaw Mountains, Montana. U.S. Geological Survey, Miscellaneous Geologic Investigations Map I-236. Washington, D.C.

Pecora, W.T., I.J. Witkind, and D.B. Stewart. 1957. Preliminary General Geologic Map of the Laredo Quadrangle, Bearpaw Mountains, Montana. U.S. Geological Survey, Miscellaneous Geologic Investigations Map I-234. Washington, D.C.

U.S. Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS), 1999. Unpublished maps and data. Soil Survey field office, Havre. Montana. February.

U.S.D.A., Soil Conservation Service (SCS), 1986. Soil Survey of Blaine County and part of Phillips County, Montana. In cooperation with U.S. Department of Interior, Bureau of Indian Affairs, and Montana Agricultural Experiment Station, Montana State University, State Land and Investments Department. April.

PHYSICAL ENVIRONMENT

2. AIR Would the Proposed Action result in:	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED	COMMENT INDEX
	UNKNOWN	NONE	MINOR	SIGNIFICANT		
a. Emission of air pollutants or deterioration of ambient air quality?			X		Yes	2(a)
b. Creation of objectionable odors?			X		Yes	2(b)
c. Alteration of air movement, moisture, or temperature patterns or any change in climate, either locally or regionally?		X				
d. Adverse effects on vegetation, including crops, due to increased emissions of pollutants?		X				

AFFECTED ENVIRONMENT:

The proposed game farm site is situated in a predominantly agricultural area. Dirt roads provide access to the site. This area is sparsely populated with no apparent air quality problems. Highway 87 passes approximately 0.5-mile southeast of the site. The area is not classified for air quality attainment status (DEQ 1997).

PROPOSED ACTION:

2(a) Fence construction and road use may result in short-term minor increases in particulate matter in ambient air.

2(b) Minor odor problems may result from waste management practices in areas where game farm animals concentrate to feed. Odors associated with the cattle already abundant in this area would be similar to those the game farm animals may create.

NO ACTION:

No impacts to air quality are expected to result from the No Action Alternative.

CUMULATIVE EFFECTS:

No additional impacts from past, present or reasonably foreseeable activities near the proposed game farm are anticipated.

COMMENTS:

Dust and odor are not expected to be of significant concern at the proposed game farm site due to distances to the relatively sparse population in this area. If dust and/or odor problems arise, mitigation measures can be implemented.

Required Stipulations: None

Recommended Mitigation Measures:

- Dust management activities include spraying water on unpaved roads during the dry season, vegetating exposed ground where possible, protecting fill piles from wind erosion, and limiting ground disturbance to only the area necessary to complete the job.

- Employ the following best management practices (BMPs) to reduce odor problems if they occur: (1) incorporate waste into soil quickly by plowing or discing; (2) spread waste during cool weather or in the morning during warm, dry weather; and (3) properly dispose of animal carcasses. Carcasses should not be disposed of in or adjacent to water bodies, roads, and ditches. These and other BMPs are described in "Guide to Animal Waste Management and Water Quality Protection in Montana" (DEQ 1996).

REFERENCES:

Montana Department of Environmental Quality (DEQ), 1997. Montana Air Quality Non-Attainment Areas. Revised January, 1997.

DEQ, 1996. Guide to Animal Waste Management and Water Quality Protection in Montana. Helena, MT.

PHYSICAL ENVIRONMENT

3. WATER	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED	COMMENT INDEX
Would the Proposed Action result in:	UNKNOWN	NONE	MINOR	SIGNIFICANT		
a. Discharge into surface water or any alteration of surface water quality including but not limited to temperature, dissolved oxygen or turbidity?			X		Yes	3(a)
b. Changes in drainage patterns or the rate and amount of surface runoff?			X		Yes	3(a)
c. Alteration of the course or magnitude of flood water or other flows?		X				
d. Changes in the amount of surface water in any water body or creation of a new water body?		X				
e. Exposure of people or property to water related hazards such as flooding?		X				
f. Changes in the quality of groundwater?			X		Yes	3(f)
g. Changes in the quantity of groundwater?		X				
h. Increase in risk of contamination of surface or groundwater?			X		Yes	3(f)
i. Violation of the Montana non-degradation statute?		X				
j. Effects on any existing water right or reservation?		X				
k. Effects on other water users as a result of any alteration in surface or groundwater quality?			X		Yes	3(f)
l. Effects on other water users as a result of any alteration in surface or groundwater quantity?		X				

AFFECTED ENVIRONMENT:

The valley of Big Sandy Creek is cut into a gently sloping plain. The proposed Diamond K Elk Enterprises Ranch 2 Game Farm is situated on 869 acres of the plain bordering the steep east slope of the valley (Figure 1). The site is approximately 80 feet higher in elevation than the valley bottom and currently comprises approximately 717 acres of cropland, 143 acres of rangeland, and three seasonal farm ponds and associated wetlands totaling approximately 9 acres. Runoff from the site would most likely occur during late winter snowmelt or major precipitation events. The site drains to Big Sandy Creek through one main gully and several smaller gullies which incise the east slope of the valley. The main gully drains the Phase 1 and 2 pastures and then cuts northward to the immediate east of the Phase 3 pasture. The majority of the Phase 3 pasture drains northeast to the main gully, while the remainder drains northwest through the smaller gullies leading directly to the creek.

An earthen dam within the Phase 1 enclosure blocks the main gully and produces the largest farm pond (approximately 7 acres). This pond is used by waterfowl and is bordered by vegetation typical of wetlands. The Proposed Action would fence the pond out of the surrounding pastures (Figure 1) to allow the potential

to control direct access to the pond by game farm animals and cattle. Following snowmelt or precipitation events the pond may extend back into the southeast enclosure of the Phase 1 pasture, as was the case during the February 1999 site visit.

The other two farm ponds are less than 1 acre in size. One is an excavated impoundment in the northeast enclosure of the Phase 1 pasture and the other is located behind a small earthen dam on a minor drainage located on the east side of the Phase 3 pasture (Figure 1). This dam has been damaged by erosion, but would be repaired during construction of the pasture (Kafka, pers. commun.). Water for the elk would be obtained from the farm ponds and/or water tanks filled with water from Big Sandy Creek under the applicants surface water right (Kafka, pers. commun.).

Numerous parties have water rights for Big Sandy Creek (DNRC, 1999). The creek has a low priority on Montana's Total Maximum Daily Load (TMDL) list (DEQ, 1998). Probable impaired uses include aquatic life support, agriculture, and warm water fisheries. Probable causes of the impairments include dissolved solids, siltation, and thermal modifications likely resulting from crop production and streambank modifications.

The applicants' home and water well are located at the existing 40-acre game farm, adjacent to the proposed Phase 1 pasture (Figure 1). Records on-file with the Montana Department of Natural Resources and Conservation (DNRC, 1999) indicate that six water wells are located on neighboring properties within 1 mile of the site. The nearest of these is at the home of the applicants' sister, which adjoins the northeast corner of the Phase 1 pasture. The other five wells are located approximately 0.9 mile south, east, and north of the proposed game farm boundary.

Well construction information are available for two of the wells neighboring the site. The sister's well is reportedly 135 feet deep with a static water level at 67 feet below grade. This well appears to be typical of water well construction in this area. The other well with construction data is located 0.9-mile north of the site and is reportedly 1,745 feet deep with a static water level at 38 feet below grade. This well appears to be unusually deep for this area. Approximately four homes located west of the site in the valley of Big Sandy Creek or on the upland west of the creek reportedly obtain domestic water from the Kremlin municipal water system (Kafka, pers. commun).

PROPOSED ACTION:

3(a) Increased runoff and erosion could occur in some areas of the game farm if the stocking rate exceeds the carrying capacity of the pasture and vegetative cover is diminished (see the following Vegetation section). If vegetative cover is reduced significantly, the game farm operation could meet the definition of an "animal feeding operation" (ARM 17.30.1304(3)). If water containment structures are needed on the project site to control runoff and do not have the capacity for the 25-year, 24-hour storm, a "concentrated animal feeding operations" (CAFO) permit must be obtained to permit the discharge. A CAFO permit could eventually be required for the Diamond K Enterprises Ranch 2 Game Farm operation if the proposed maximum stocking rate of 400 adult elk, 50 adult game farm animals of other species, and up to 400-450 adult cattle is realized and there is extensive loss of vegetative cover. Filling or dredging of any waters of the U.S. (e.g., culvert installation) may require a "404 Permit" from the U.S. Army Corps of Engineers (COE).

3(f) Domestic elk fecal matter and nutrient-enriched water may have a minor effect on the quality of groundwater and surface water in the vicinity of the site. Use of the 869-acre site to winter up to 400-450 cattle in combination with its use by up to 450 game farm animals could produce relatively large quantities of excess nutrients and manure. Nutrient-laden runoff from the site could potentially enter Big Sandy Creek during periods of snowmelt or precipitation which produce flow

out of the farm ponds and into the main gully draining the site. Effects of such a discharge from the site would be moderated by the high flow rates that would occur in Big Sandy Creek. The closest neighboring water supply well is in excess of 100 feet deep and is not likely to be affected by the game farm. Potential transport of pathogens from the game farm into Big Sandy Creek is discussed in the following *Risk/Health Hazards* section.

NO ACTION:

Current hydrologic conditions are not expected to change under the No Action Alternative; dryland crop production or cattle ranching would likely be conducted in the project area if the game farm is not constructed.

CUMULATIVE EFFECTS:

The general area is used for crop production, ranching, and rural housing. A 40-acre elk game farm owned by the applicant adjoins the Phase 1 pasture and they have proposed a 65-acre elk game farm (Big Sandy Elk) to be constructed immediately northeast of the proposed Phase 3 pasture. Collectively, these would result in over 500 game farm animals living within a 2.5 square mile area on a year-long basis and up to 400-450 cattle held on the same site for several months during fall, winter, and spring. There will likely be opportunity for cumulative effects on water resources related to nutrient loading and increased soil erosion given the intensive use of this relatively small area for animal husbandry.

COMMENTS:

Due to potential minor impacts identified above from increased runoff and elk fecal matter, several mitigation measures are recommended. Other water quality protection practices may be required by the Montana Department of Environmental Quality (DEQ) if it is determined that water quality standards are being exceeded or that a CAFO permit is necessary. Refer to "Guide to Animal Waste Management and Water Quality Protection in Montana" (DEQ 1996) and "Common Sense and Water Quality, A Handbook for Livestock Producers" (Montana Department of Health and Environmental Sciences, 1994) for further information on mitigation measures and CAFO permits. The following management practices are recommended to minimize the risk of discharging pollutants to state water:

Required Stipulations: None.

Recommended Mitigation Measures:

- Maintain a reasonable stocking rate in the game farm area to mitigate potential impacts from runoff and fecal matter. Potential water quality impacts also could be minimized by disposing dead animals and excess fecal material at a site that is isolated from surface water and groundwater (disposal must meet county regulations for solid waste). Game farm animal gut piles would be disposed of in a gas-fired incinerator.

- For any areas that may have erosion and sedimentation problems, utilize best management practices (BMPs) where surface water could enter gullies draining to Big Sandy Creek. The BMPs may include earth berms, straw bale dikes, vegetative buffer zones, and/or silt fences.

REFERENCES:

Kafka, Kim and Cindy, 1998. Application for Big Sandy Elk Game Farm dated December 3, 1998.

Kafka, Kim, 1999. Personal communication with Chris Cronin, Maxim Technologies during site visit on February 25, 1999.

Montana Department of Environmental Quality (DEQ), 1998. Montana's List of Waterbodies In Need Of Total Maximum Daily Load (TMDL) Development. Helena, MT.

Montana Department of Environmental Quality (DEQ), 1996. Guide to Animal Waste Management and Water Quality Protection in Montana. Helena, MT.

Montana Department of Health and Environmental Sciences (DHES), 1994. Common Sense and Water Quality, A Handbook for Livestock Producers. Water Quality Division. Helena, MT.

Montana Department of Natural Resources and Conservation (DNRC), 1999. Computer File Search of Water Rights. Helena DNRC office. Obtained online from Internet. February and March 1999.

PHYSICAL ENVIRONMENT

4. VEGETATION Would the Proposed Action result in:	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED	COMMENT INDEX
	UNKNOWN	NONE	MINOR	SIGNIFICANT		
a. Changes in the diversity, productivity or abundance of plant species?		X				4(a)
b. Alteration of a plant community?		X				4(b)
c. Adverse effects on any unique, rare, threatened, or endangered species?		X				4(c)
d. Reduction in acreage or productivity of any agricultural land?			X		Yes	4(d)
e. Establishment or spread of noxious weeds?			X		Yes	4(e)

AFFECTED ENVIRONMENT:

The proposed 869-acre game farm is located on relatively level agricultural land adjacent to, but above the flood plain of Big Sandy Creek about 6 miles southwest of Havre, MT. The game farm is comprised of 717 acres of cropland (83%), 143 acres of rangeland (16%), and 9 acres of wetlands (1%). Current use of this site is to grow small grain crops and to pasture cattle following the harvest of the crops. The majority of rangeland vegetation consists of introduced plants such as alfalfa, crested wheatgrass, and pubescent wheatgrass. Native vegetation remains only in uncultivated areas along the edges of the agricultural fields. Native vegetation is dominated by blue grama, needle-and-thread grass, western wheatgrass, plains muhly, and prairie sandgrass. The wetland area surrounds a small farm pond that impounds surface water runoff in the main gully that crosses the game farm. Vegetation within the wetland area consists of sedges, rushes, and plains cottonwood. Native vegetation has been eliminated from the cropland area. Crops planted in the agricultural area include wheat, barley, and oats/peas.

Forage production in the tame pasture rangeland site is estimated at 1,500 pounds per acre and forage production in the cultivated field when used for oat/pea hay averages about 3,000 pounds per acre (Kim Kafka, pers. commun.). Forage production in the wetland areas would be variable depending upon precipitation and runoff. Average productivity might be around 2,000 pounds per acre. Total forage production at the proposed game farm site is estimated at 1,308,000 pounds. Should the cultivated area be planted to perennial introduced vegetation, productivity in the cropland area would likely decline to approximately 1,500 pounds per acre. There are no federally-listed threatened or endangered plant species expected to occur within the proposed game farm site. The proposed game farm site does contain suitable habitat for noxious weeds such as spotted knapweed, leafy spurge, Canada thistle and mullein, but these species were not evident during the site inspection.

PROPOSED ACTION:

4(a) The Proposed Action would place up to 400 adult elk, 10 pronghorn antelope, 10 mule deer, 10 white-tailed deer, 10 bighorn sheep, and 10 mountain goats within the 869-acre enclosure. These species would use the proposed game farm on a year-long basis. The annual forage consumption for 400 adult elk and the 50 individuals of other big game species would be approximately 1,660,750 pounds. The proposed game farm site would not supply all forage requirements of the game farm animals on an annual basis. In addition, forage productivity would likely decline under year-long continuous grazing and there would probably be unvegetated areas where the game farm animals concentrate. The proposed game farm stocking rate would be 2.2 acres per adult

elk and 17.4 acres per adult animals of the other five species. Total overall stocking rate would be 1.9 acres per adult animal. Considerable supplemental feed would be required to sustain the game farm animals.

An existing use of a portion of the proposed game farm site is to winter 400 to 450 adult female cattle. At the start of the wintering period, 300-350 calves are held here until their sale, at the end of the wintering period, the adult cows calve on this site. This practice with cattle would be continued on this site once the game farm is fenced and licensed. Although the vegetation is dormant in the winter and the ground is generally frozen, the concentration of over 800 large ungulates into six game farm pastures totalling 869 acres would further impact the vegetation and soils. Under the existing conditions, cattle are not present from spring through early fall, and area is used to grow pasture, hay, and other agricultural crops during the growing season. Under dual use there would be no growing season rest for this area. Accumulation of manure and loss of vegetative cover could become a problem in some areas of the game farm.

4(b) There are no plans to alter the native vegetation remaining on the edges of the cropland or to replant the pasture currently supporting tame pasture grasses. However, the cropland would be seeded to alfalfa, crested wheatgrass and pubescent wheatgrass to establish a perennial vegetative cover. Areas where elk and other game farm animals are fed or handled may lose vegetative cover or fail to develop vegetative cover, but this would be restricted to a small portion of the game farm. The proposed stocking level of 1.9 animals per acre on a year-long basis is high for a dryland range site such as this. The dual use of this site by 400-450 adult cattle during winter would further impact vegetation resources. This stocking level would exert a significant influence on both the tame pasture and native grassland sites. Highly palatable plants would likely decrease in abundance while unpalatable plants would increase.

4(c) There are no known threatened or endangered plant species in this area.

4(d) Development of the proposed game farm would result in the conversion of 717 acres of cropland to pastureland. There are extensive areas of cropland surrounding Havre, and the loss of 717 acres of cropland is relatively minor.

4(e) Although noxious weeds were not apparent at this site, disturbed sites around feeding areas or handling facilities would provide an opportunity for weeds to become establish. Weed seeds could potentially be imported into the area with feed for the elk and other game farm animals. The intensive stocking rate would also encourage the establishment of weeds. Should noxious weeds be detected, a weed control program should be implemented to control the weeds.

NO ACTION:

The No Action Alternative would likely result in the continuation of the present management of dryland crop production and cattle grazing in tame pastureland.

CUMULATIVE EFFECTS:

There are no anticipated cumulative effects on vegetation resources associated with the proposed project. The proposed game farm site, a proposed 65-acre game farm site, and an existing 40-acre game farm have all been extensively cultivated with little native vegetation remaining.

COMMENTS:

Due to potential minor impacts identified above on vegetation resources, mitigation measure(s) are recommended.

Required Stipulations: None

Recommended Mitigation Measures:

- Monitor the proposed game farm site for invasion of noxious weeds and treat affected areas in a timely manner.

- Supplemental feed and minerals should be provided to the elk and other game farm animals on a seasonal basis to reduce excessive grazing on preferred pasture plants.

REFERENCES:

Kafka, Kim, 1999. Game farm applicant. Personal communication with Craig Knowles, FaunaWest Wildlife Consultants. February 1999.

PHYSICAL ENVIRONMENT

5. FISH/WILDLIFE Would the Proposed Action result in:	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED	COMMENT INDEX
	UNKNOWN	NONE	MINOR	SIGNIFICANT		
a. Deterioration of critical fish or wildlife habitat?		X				5(a)
b. Changes in the diversity or abundance of game species?			X		No	5(b)
c. Changes in the diversity or abundance of nongame species?		X				5(c)
d. Introduction of new species into an area?		X				5(d)
e. Creation of a barrier to the migration or movement of animals?			X		No	5(e)
f. Adverse effects on any unique, rare, threatened, or endangered species?		X				5(f)
g. Increase in conditions that stress wildlife populations or limit abundance (including harassment, legal or illegal harvest or other human activity)?			X		No	5(g)

AFFECTED ENVIRONMENT:

The proposed game farm is comprised of 717 acres of cropland (83%), 143 acres of rangeland (16%), and 9 acres of farm ponds and associated wetlands (1%). The site is currently used to grow small grain crops and to pasture cattle following the harvest. The site is located on a broad bench adjacent to and above Big Sandy Creek. The land surrounding the proposed game farm is cropland except for bottomlands along Big Sandy Creek which remain in native vegetation. The riparian zone along Big Sandy Creek contains very little woody vegetation.

The proposed game farm site represents low density mule deer, white-tailed deer, and pronghorn antelope habitat. These species use the game farm area on an occasional basis (Shane Reno, pers. commun.). Approximately 150-200 wild elk occur in the Bear Paw Mountains 30 miles southeast of the game farm site (Al Rosgaard, pers. commun.). About once a year, a wild elk or moose is reported to travel along Big Sandy Creek (Shane Reno, pers. commun.). There are no known migration corridors or critical winter range for any big game species in this area. Bighorn sheep also occur along the river breaks south of the Bear Paw Mountains and occasionally, a ram may travel into the Bear Paw Mountains. This herd has been reintroduced to the Missouri River breaks during the past 20 years, and has done very well with approximately 500 sheep living on either side of the River (Al Rosgaard, pers. commun.). This is now one of Montana's largest bighorn sheep herds. Due to the distance between this herd and the proposed game farm and the unsuitable bighorn sheep habitat in this area, there is little likelihood of contact.

This area is also used by sharp-tailed grouse, gray partridge, and pheasants. These birds primarily winter in shelter belts near the Kafka ranch headquarters and disperse from this area during early spring (Kim Kafka, pers. commun.). In addition, a small impoundment near the proposed game farm site is used by large numbers of ducks, geese and swans during migratory periods. Some Canada geese and mallards nest in the vicinity of the pond during spring (Kim Kafka, pers. commun). This area could potentially be used by migratory bald eagles, and peregrine falcons, (federally-listed bird species), but there are no known resident threatened or endangered wildlife species.

PROPOSED ACTION:

5(a) The Proposed Action would place up to 400 adult elk, 10 pronghorn antelope, 10 mule deer, 10 white-tailed deer, 10 bighorn sheep, and 10 mountain goats within the 869-acre enclosure. The primary purpose of the proposed game farm is to breed these species within six different pastures contained within the game farm. Animals of each species would be present on a year-long basis. Limited fee hunting of game farm animals would also be part of the plan of operation.

An existing use of a portion of the proposed game farm site is to winter 400 to 450 adult female cattle. At the start of the wintering period, 300-350 calves are held here until their sale, and at the end of the wintering period, the adult cows calve on this site. Under the existing conditions, cattle are not present from spring through early fall, and the area is used to grow pasture, hay, and other agricultural crops during the growing season. This practice of wintering cattle would be continued on this site once the game farm is fenced and licensed. Under dual use there would be no growing season rest for this area, and accumulation of manure and loss of vegetative cover could become a problem in some areas of the game farm. Diseases such as brucellosis are most easily transmitted during the calving period when afterbirth is present on the ground. However, it is assumed that cattle and game farm animals would be confined to separate pastures during periods of dual use which should minimize contact between the various species. In addition, the elk and cattle are assumed to be brucellosis and tuberculosis free. The accumulation of manure would result in conditions that promote the spread of parasites and diseases. Cattle feedlot operations mitigate these problems by surface and oral application of antihelminthics, and inclusion of antibiotics into cattle feed. Similar practices could be developed for the game farm.

There would be fee hunting of an occasional adult male game farm animal. Such activity would likely occur during winter and would require that the shooter be accompanied by the game farm owner or an employee to assure that the shot placement would not endanger public safety. Upon slaughter of game farm animals, the carcass comes under the ownership of the shooters and the gut piles would be disposed of in a gas fired incinerator.

The proposed game farm site is not located within any critical big game winter range, nor is it located along a migration corridor. This specific site receives only occasional use by mule deer, white-tailed deer and pronghorn antelope. The potential impacts on big game species would largely be limited to these few deer and antelope that reside in this general area. There are no perennial streams within the proposed game farm site, but there is a small impoundment within the Phase 1 & 2 pasture that collects surface runoff. This pond already receives significant effluence from wintering livestock, and fertilizer and soil washed from agricultural fields within its drainage basin. The proposed game farm would be expected to increase the eutrophic conditions of this pond, but would not significantly impact aquatic resources elsewhere. Nesting success of geese and ducks nesting around this pond would probably decline due to the lack of suitable vegetative cover.

5(b) Fencing of 869 acres would be a minor impact because only a few wild deer and antelope live in the general area of the proposed game farm. This area has been extensively impacted by agriculture for most of this century, and availability of agricultural habitat is not a limiting factor for these deer and antelope. Wild elk can potentially pass through this area on occasion and could be attracted to the game farm especially during the rut. Bulls fighting through the fence and damaging the fence has been reported elsewhere. The proposed game farm fence would be located primarily on level land and would cross slight slopes (less than 10 degrees) in only a few areas. There would only be minimal opportunity for wild ungulates to enter the game farm because of the excellent characteristic for fencing, and low density of wild deer, antelope and elk. Should deer or other wild ungulates enter the game farm, they would likely be destroyed rather

than released back to the wild. These impacts may affect individuals but not populations. There is little potential for large predators to pass through this area and be attracted to the elk in the enclosure.

5(c) The containment of 400 adult elk on 869 acres is not expected to impact nongame wildlife species beyond the existing conditions of crop production and grazing by cattle.

5(d) There would be no introduction of a new species to this area.

5(e) Despite their low numbers, deer and pronghorn antelope do pass through this area and the fencing of 869 acres is expected to alter their daily or seasonal movement patterns. The effect of the fence as a passage barrier would be diminished somewhat because the game farm will be fenced as two separate units of 380 acres (Phase 1 & 2 pasture) and 489 acres (Phase 3 pasture) (Figure 1). There would be a small opening between the northwest corner of the Phase 1 & 2 pasture and the southeast corner of the Phase 3 pasture. The Phase 1 & 2 pasture will be contiguous with an existing 40-acre game farm thereby forming a 420-acre enclosed area. In most cases, a deer or an antelope attempting to travel through this area would need to walk 1.0 to 1.5 miles to reach the same location that could be obtained by walking 0.5 mile if the fence were not present. In addition, due to the configuration of the proposed game farm, there would be five sides with at least 1 mile of continuous fence runs, and there would be one side with a internal right angle 0.5 mile from the exterior corners. Added to this maze of fencing is a proposed 65-acre game farm located immediately northeast of the Phase 3 pasture, and the Kafka ranch headquarters at the northeastern corner of the Phase 1 & 2 pasture. During snow free periods, distances required to circumnavigate (1.0 to 1.5 miles) the game farm are within the range of daily movement of deer and pronghorn. The topography is relatively level and the wild ungulates would not be forced to travel through unfavorable habitat or terrain. However, during winter with periods of drifted snow, travel around the game farm fence might become more difficult and coyotes may be able to take advantage of the fence barrier to aid in capturing deer or antelope. The proposed game farm fence has the potential to influence individual wild big game animals, but would not effect the overall populations of deer and antelope in this general area.

5(f) The proposed game farm is not likely to cause impacts to bald eagles or peregrine falcons.

5(g) Construction of the enclosure has potential to increase stress levels to wild ungulates during winter as described in 5(e). This would impact individual animals but would not significantly alter the local population of deer and antelope.

NO ACTION:

No wildlife related impacts are expected to occur under the No Action Alternative. The area would continue to be managed for crop production and domestic livestock grazing.

CUMULATIVE EFFECTS:

There is an existing 40-acre game farm at the Kafka ranch headquarters that would abut the east side of the proposed game farm. There also is a proposal to build a third game farm in this immediate vicinity that would create a 65-acre enclosure. Cumulatively there would be 975 acres of land within a 2.5 square mile area fenced to exclude wild ungulates. Within these enclosures there could potentially be 480 adult elk, plus 10 pronghorn antelope, 10 mule deer, 10 white-tailed deer, 10 bighorn sheep and 10 mountain goats. This would be a large enough area to become an adverse influence on the home range use of one or more deer. The probability that the three game farms might become a passage barrier is diminished somewhat because there are sufficiently large gaps between the two proposed game farms to allow for

movement of wild ungulates, and there would also be a small gap between the two large units of the proposed game farm that wild ungulates could potentially pass through. Despite the combined size of the two proposed game farms and the third existing game farm, cumulative impacts on wildlife resources in this area probably would be minor due to the fact that the wild big game population in this area is low. There will be some additional cumulative effects resulting from wintering and calving cattle within the proposed game farm. These impacts probably would affect water quality more than wildlife.

COMMENTS:

Required Stipulation: None.

Recommended Mitigation Measures:

The following game farm management practices would help to minimize impacts to free ranging wildlife species. Implementation of these mitigation measures, most of which are standard practices, is highly recommenced and should be considered a form of mitigation.

- Store hay, feed, and salt away from exterior fences or enclose in buildings.
- Feed game farm animals at interior portions of the enclosure and not along the perimeter fence.
- Properly dispose of dead animals and isolate excess fecal material and waste feed from potential contact with humans, domestic animals, and wild animals.
- Inspect exterior game farm fence on a regular basis and immediately after events likely to damage fence to ensure its integrity with respect to trees, frost-heaving, corrosion, burrowing animals, predators, and other game animals.
- If fence integrity or ingress/egress becomes a problem, adjust the fence as necessary, including: double fencing, electrification, additional post support, replacing damaged posts, or increased fence height.
- During winters of exceptional snow cover, remove snow on either side of the perimeter fence to prevent ingress/egress, or keep game farm animals away from fence areas where significant snow buildup occurs.

REFERENCES:

Kafka, Kim, 1999. Game farm applicant. Personal communication with Craig Knowles, FaunaWest Wildlife Consultants. February, 1999.

Rosgaard, Al, 1998. Montana Fish, Wildlife & Parks (Region 6) wildlife biologist. Personal communication with Craig Knowles, FaunaWest Wildlife Consultants. April-July 1998.

HUMAN ENVIRONMENT

6. NOISE EFFECTS	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED	COMMENT INDEX
Would Proposed Action result in:	UNKNOWN	NONE	MINOR	SIGNIFICANT		
a. Increases in existing noise levels?			X		Yes	6(a)
b. Exposure of people to severe or nuisance noise levels?		X				

AFFECTED ENVIRONMENT:

Operation of agricultural equipments, livestock and traffic on Highway 87 currently generate noise in the site vicinity. Noise generated by the proposed game farm would be similar to existing conditions. Seven neighboring residences have been identified within 1 mile of the site. Due to the sparse population, these sources of noises would likely not be a problem.

PROPOSED ACTION:

6(a) The Proposed Action would result in a minor short-term increase in existing noise levels from fence construction, elk bugling, and shooting. The nearest neighboring residences to the proposed game farm are located approximately 0.25-mile northwest and north of the proposed Phase 3 pasture.

NO ACTION:

No impacts to existing noise levels are expected from the No Action Alternative.

CUMULATIVE EFFECTS:

No additional impacts on noise levels from past, present or reasonably foreseeable activities near the proposed game farm are anticipated.

COMMENTS:

Due to distances to the nearest residences and overall sparse population in the area, noise generated from the proposed game farm should not cause a problem. If noise concerns are raised, mitigation measures can be employed.

Required Stipulations: None

Recommended Mitigation Measures:

Impacts to neighbors from construction noise can be reduced by limiting noisy activities to daylight hours and completing construction promptly. Excessive noise from elk bugling and/or shooting can be reduced by limiting shooting and the number of bull elk.

HUMAN ENVIRONMENT

7. LAND USE Would Proposed Action result in:	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED	COMMENT INDEX
	UNKNOWN	NONE	MINOR	SIGNIFICANT		
a. Alteration of or interference with the productivity or profitability of the existing land use of an area?		X				
b. Conflict with a designated natural area or area of unusual scientific or educational importance?		X				
c. Conflict with any existing land use whose presence would constrain or potentially prohibit the Proposed Action?		X				
d. Conflict with any existing land use that would be adversely affected by the Proposed Action?		X				
e. Adverse effects on or relocation of residences?		X				

AFFECTED ENVIRONMENT:

The proposed game farm is predominantly surrounded by sparsely populated private rangeland and cropland (Figures 2 and 4). The applicants' home is located at the existing 40-acre game farm, adjacent to the proposed Phase 1 pasture, and the home of the applicants' sister adjoins the northeast corner of the Phase 1 pasture (Figure 1). Seven neighboring residences have been identified within 1 mile of the site. These neighbors comprise: three homes located on the bluff west of the Big Sandy Creek Valley, about 0.25-mile northwest of the Phase 3 pasture; one home with ranch buildings located in the valley bottom, about 0.25-mile north of the pasture, one home located on the east bluff of the valley, about 0.9-mile north of the pasture; one home adjoining Highway 87, about 0.5-mile southeast of the Phase 1 and 2 pastures; and one home located 0.25-mile west of Highway 87 and about 0.9-mile south of the Phase 2 pasture.

The southwest corner of the Phase 2 pasture adjoins a section of rangeland owned by the State of Montana. Additional state land about 1 mile east of the Phase 1 pasture is the site of historic Fort Assinniboine and is currently used as an agricultural experiment station (Figure 2). One-eighth section of U.S. Bureau of Land Management land is located 0.5-mile southwest of the Phase 3 pasture. Public and private lands in this area are commonly accessible to local hunters seeking pheasants, deer, antelope, and coyotes (Shane Reno, FWP, pers. commun.).

PROPOSED ACTION:

The proposed game farm would be compatible with existing agricultural land uses.

NO ACTION:

The No Action Alternative would result in no change in the present agricultural uses of the site.

CUMULATIVE EFFECTS:

No cumulative impacts are expected on land use from the proposed game farm project.

COMMENTS:

No mitigation measures are recommended.

REFERENCES:

Reno, Shane, 1998. Montana Fish, Wildlife & Parks (Region 6) Game Warden. Personal communication with Chris Cronin, Maxim Technologies. March 10, 1999.

HUMAN ENVIRONMENT

8. RISK/HEALTH HAZARDS Would Proposed Action result in:	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED	COMMENT INDEX
	UNKNOWN	NONE	MINOR	SIGNIFICANT		
a. Risk of dispersal of hazardous substances (including, but not limited to chemicals, pathogens, or radiation) in the event of an accident or other forms of disruption?			X		Yes	8(a)
b. Creation of any hazard or potential hazard to domestic livestock?			X		Yes	8(b)
c. Increased risk of contact and disease between game farm animals and wild game?			X		Yes	8(c)
d. Creation of any hazard or potential hazard to human health?				X	Yes	8(d)

PROPOSED ACTION:

8(a) There is a potential for transmission of water-borne disease pathogens, if present, to be transported downstream from the game farm in Big Sandy Creek. However, this risk would be minor because of game farm animal disease testing requirements and because game farm runoff into Big Sandy Creek would occur only during late winter and spring snowmelt or major precipitation events. In addition, water in Big Sandy Creek is not expected to be used directly for human consumption. While water provides a favorable environment for diseases such as brucellosis, the dilution factor associated with flowing surface water (i.e., Big Sandy Creek during major runoff events) makes it an unlikely means of transmission (Nielson and Duncan, 1990). Survival times for brucellosis and tuberculosis in water range from a couple of days to over 100 days (Nielson and Duncan, 1990; Meyer, 1997). The route of chronic wasting disease (CWD) transmission at this time is unknown; therefore, the potential for transmission by soil, water or other media cannot be determined.

8(b) Infectious diseases can potentially be transmitted between game farm elk and deer, and domestic livestock. If brucellosis or tuberculosis should occur in the game farm animals, it could potentially be transmitted between different species. Domestic livestock would be held in a portion of the proposed game farm from late fall to early spring. It is assumed that game farm animals would be removed from these pastures during periods that cattle are present, but game farm animals would be returned to the pastures when cattle are removed. This situation would present considerable opportunities for the transmission of disease between game farm animals and cattle. Keeping the animals in separate pastures, however, prevents a worse case scenario for interspecific disease transmission. The problem of disease control and transmission at the proposed game farm site is compounded by the proposed intensive stocking of both cattle and game farm animals in the same area. Excessive manure accumulation and close physical contact between animals would result in conditions conducive for the spread of parasites and diseases. Cattle feedlot operations mitigate these problems by surface and oral application of antihelminthics, and inclusion of antibiotics into cattle feed. Similar practices could be developed for the game farm. Cattle may also be pastured on adjacent croplands and pasturelands, and there would be an opportunity for contact between domestic livestock and game farm animals.

Chronic wasting disease (CWD) also has been detected in game farm elk in three states and one Canadian province, but the mode of transmission is unknown and there is no test for this disease in living animals. CWD has been a known wildlife disease for 30 years in Colorado and Wyoming. There is no evidence of CWD transmission to domestic livestock or humans.

The risk of disease being passed from game farm elk to domestic livestock can also be reduced if internal fence integrity is maintained and the stipulations and mitigation measures described in this EA are followed. Potential for disease transmission to domestic livestock from game farm animals is also mitigated through DoL disease testing requirements. All animals to be placed on this game farm are required to be tested for tuberculosis at the time of import, purchase and/or transportation to the game farm. A test for brucellosis is also required for all game farm animals that are sold or moved within the state, and is required for all game farm animals imported into Montana. Montana is presently a tuberculosis-free and brucellosis-free state (i.e., these diseases have not been diagnosed in domestic livestock). Each game farm is required to have access to an isolation pen (quarantine facility) on the game farm or approved quarantine plan to isolate any animals that are imported or become ill. The state veterinarian can require additional testing and place herds under strict quarantine should problems arise.

8(c) There is an undetermined potential of domestic elk to carry or become infected with a contagious wildlife disease or parasite such as tuberculosis, and then come in contact (through-the-fence, nose-to-nose, nose-to-soil, or ingress/egress) with wild deer, elk or other wildlife. Potential for disease transmission to wildlife from game farm animals is also mitigated through DoL disease testing requirements. The release of a contagious disease in the wild could severely impact native wildlife populations since mule and white-tailed deer are present in the vicinity of the proposed game farm. It is also possible that diseases and parasites carried by wild deer or elk could be introduced to the domestic elk with equally severe impacts. Ingress of wild deer or elk would likely result in the destruction of the trespassing animals. Spread of a contagious wildlife disease may directly or indirectly (depending on the nature of the disease) affect the human environment by reducing the number of wild deer and elk available for hunting or exposing hunters to diseases which are contagious to humans as well. Fence integrity must be maintained to minimize the potential for ingress and egress. Employees servicing gas wells in the game farm enclosure could potentially leave gates open if unsupervised.

8(d) If tuberculosis or brucellosis were to be transmitted from domestic elk and to wild elk and deer, hunters field dressing wild elk or deer would be subject to some risk of infection. Veterinarians and meat cutters working with diseased game farm animals are at risk of becoming infected with brucellosis or tuberculosis. Routine brucellosis and tuberculosis testing requirements for game farm animals offer a measure of surveillance to minimize risk to human health. Failure to comply with these requirements is grounds for license revocation. Pathogens that could be transported by Big Sandy Creek from the game farm are expected to be a minor risk for reasons mentioned above in 8(a).

Seven neighboring residences have been identified within 1 mile of the site. These neighbors comprise: three homes located on the bluff west of the Big Sandy Creek Valley, about 0.25-mile northwest of the Phase 3 pasture; one home with ranch buildings located in the valley bottom, about 0.25-mile north of the pasture, one home located on the east bluff of the valley, about 0.9-mile north of the pasture; one home adjoining Highway 87, about 0.5-mile southeast of the Phase 1 and 2 pastures; and one home located 0.25-mile west of Highway 87 and about 0.9-mile south of the Phase 2 pasture. In addition, unimproved county roads are located on the southern and eastern boundaries of the Phase 3 pasture and on the northern, western, and southern boundaries of the Phase 1 & 2 pasture. These nearest residences and the county roads are within the average maximum ranges for high-powered big game rifles. These distances generally are in the

range of 1.5 to 3 miles or more; however, numerous variables must be considered to determine actual lethal potential of a rifle bullet at distance (Montana Fish, Wildlife & Parks, 1996; North American Hunting Club and Wildlife Forever, 1996). The residence to the north of the proposed Phase 3 pasture is located in a low lying area and is at least partly shielded by topography. Other neighboring residences could be exposed to an errant bullet as would anyone traveling public right-of-ways bordering the game farm pastures.

NO ACTION:

Risk/health hazards would not occur from the No Action Alternative, other than those that may be associated with the existing land use, including normal shooting activities associated with the hunting season.

CUMULATIVE EFFECTS:

There is an existing 40-game farm at the Kafka ranch headquarters adjacent to the Phase 1 & 2 pasture. There also is a proposal to build a third game farm in this immediate vicinity that would create a 65-acre enclosure. Cumulatively there would be 975 acres of land within a 2.5 square mile area fenced to exclude wild ungulates. Within these enclosures there could potentially be 480 adult elk plus 10 pronghorn antelope, 10 mule deer, 10 white-tailed deer, 10 bighorn sheep and 10 mountain goats. The combined game farms would result in 530 animals being confined on 975 acres on a year-long basis. In addition, 400-450 adult cattle would continue to be wintered within the proposed game farm. This large number of animals, diversity of species (3 cervids, 4 bovids) and dual use of the game farm by cattle and game farm animals increases the probability of a disease problem and the risk that pathogens might leave the game farm areas via surface flow of water. There would also be increased opportunity for wild ungulates to come in contact with domestic big game species because of the considerable length of the perimeter fence (approximately 6.5 miles) associated with the combined game farms and the diversity of species held in confinement.

COMMENTS:

The following stipulations are imposed by FWP for the Diamond K Elk Enterprises Ranch 2 Game Farm and are designed to mitigate significant impacts identified in the EA to below the level of significance:

Required Stipulations:

(1) Provide escort to anyone entering the game farm enclosure (e.g., gas pipeline personnel) when game farm animals are present.

This stipulation is imposed to mitigate potential risk to wildlife posed by the proposed game farm. Risk to wildlife from contact between game farm animals and wild game is potentially significant due to the site being located in an area currently utilized by wild game.

(2) Shooting in the game farm enclosure using high-powered rifles must not occur in the direction of residences or highway located within 1-mile radius of the game farm. A guide or representative of the ranch familiar with the terrain must accompany each harvester to be sure shooting does not occur toward the nearby residences and highway.

This stipulation is imposed to mitigate a potentially significant risk to public health and safety due to the proximity of residences and the highway to the game farm site. There can not be shooting on, from, or across any public road (87-3-101, MCA). The requirement to have a guide with each elk harvester to

assure that shooting does not occur in a direction toward the residences or highway would reduce the chances of impacting human health and safety.

Recommended Mitigation Measures:

In addition to the mitigations presents below, mitigation measures recommended in Section 5 (*Fish/Wildlife*) are applicable to this section.

- To reduce the concentration of disease pathogens present in feces, at birthing sites, and in the soil to non-virulent levels, impose a 2-week waiting period between removal of game farm animals from a pasture and placement of cattle into a pasture. A similar 2-week waiting period should be imposed between removal of cattle from a pasture and placement of game farm animals into a pasture.

- Risk of disease epidemic or heavy parasite infections among domestic elk can be minimized by maintaining a reasonable domestic elk stocking rate in relation to the enclosure size, periodic removal of manure from concentration areas, and development of a disease immunization and parasite treatment protocol as applicable to domestic elk.

REFERENCES:

Montana Fish, Wildlife & Parks, 1996. Hunter Education, Gun Safety, Hunter Responsibility. Falcon Press, Helena and Billings, MT.

North American Hunting Club and Wildlife Forever, 1996. Third National Shooting Range Symposium, June 23-25, 1996, Orlando, Florida. Proceedings.

United States Department of the Interior (USDI). 1998. Draft Environmental Impact Statement for the Interagency Bison Management Plan for the State of Montana and Yellowstone National Park.

HUMAN ENVIRONMENT

9. COMMUNITY IMPACT Would Proposed Action result in:	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED	COMMENT INDEX
	UNKNOWN	NONE	MINOR	SIGNIFICANT		
a. Alteration of the location, distribution, density, or growth rate of the human population of an area?		X				
b. Alteration of the social structure of a community?		X				
c. Alteration of the level or distribution of employment or community or personal income?			X		NA	9(c)
d. Changes in industrial or commercial activity?		X				
e. Changes in historic or traditional recreational use of an area?		X				
f. Changes in existing public benefits provided by affected wildlife populations and wildlife habitats (educational, cultural or historic)?		X				
g. Increased traffic hazards or effects on existing transportation facilities or patterns of movement of people and goods?		X				

AFFECTED ENVIRONMENT:

The proposed game farm is located six miles southwest of Havre, in Hill County. More than one-half of the county residents live in Havre, the county seat and major trade center of the area (Montana Department of Commerce, Census and Economic Information Center, 1998). Since lodging for game farm clients is not available on site, clients most likely would seek lodging in Havre.

One to two seasonal employees would be hired for operation of the proposed game farm. In addition to these employees, family members would continue to work on the operation of the existing ranch as well as the game farm operation (Kafka, pers. comm.).

PROPOSED ACTION:

9(c) Operation of the proposed game farm would provide employment for one to two seasonal workers. Local businesses providing goods and services would benefit the most as a result of increased spending due to spending by clients using the services of the game farm. No impacts to the local infrastructure would occur under the Proposed Action.

NO ACTION:

The No Action Alternative would result in no change to the community.

CUMULATIVE EFFECTS:

No cumulative impacts are anticipated on the community from operation of the proposed game farm.

COMMENTS:

No mitigation measures are recommended.

REFERENCES:

Montana Department of Commerce, Census and Economic Information Center, Helena, Montana. 1998. 1997 Estimates of Montana's Resident Population: Counties.

HUMAN ENVIRONMENT

10. PUBLIC SERVICES & TAXES Would Proposed Action result in:	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED	COMMENT INDEX
	UNKNOWN	NONE	MINOR	SIGNIFICANT		
a. A need for new or altered government services (specifically an increased regulatory role for FWP and Dept. of Livestock)?			X		NA	10(a)
b. A change in the local or state tax base and revenues?			X		NA	10(b)
c. A need for new facilities or substantial alterations of any of the following utilities: electric power, natural gas, other fuel supply or distribution systems, or communications?		X				

AFFECTED ENVIRONMENT:

The applicant currently pays taxes associated with the ranching operation. The land in which the game farm is proposed is currently classified as agricultural land which has a low appraisal value. Personal property and ad valorem taxes also are assessed based on the market value of livestock on the ranch.

PROPOSED ACTION:

10(a) Approval of the game farm would increase time and expenses spent by FWP and DoL personnel inspecting, monitoring, and responding to complaints about operation of the game farm or egress/ingress problems. Since neither FWP or DoL has the option of hiring additional employees to handle the increased workload that could potentially be created by the game farm, activities of the current staff would need to be re-prioritized to meet the increased demand created by the game farm operation.

10(b) No additional revenues in property taxes would be realized as a result of the proposed game farm since parcels of land with 160 acres or more are classified by the county as agricultural land and already have the lowest appraisal value. The applicant, however, would have to pay additional monies for ad valorem and personal property taxes on the game farm animals. Based on the current mill levy of 392.747, the applicant would pay the county an estimated (per head cost) $13.49 for mature bull elk, $7.67 for wild deer, $7.67 for antelope, $.57 for Rocky Mountain goats, and $.57 for wild sheep. The state would collect a per capita tax of $12.00 per game farm animal. Using the total numbers of animals estimated by the applicant to be held or owned by the game farm at full capacity, the county potentially could receive approximately $5,637.50 in ad valorem taxes and the state could obtain about $5,520 in personal property taxes.

The Montana Department of Revenue (DoR) prepares a Livestock Schedule in which a market value is placed on various types of livestock, including wild game such as elk and deer. The market value is part of the calculation used to determine the county ad valorem tax. The DoR 1998 Livestock Schedule has no classification for Rocky Mountain goats and wild sheep. To calculate the ad valorem tax, Rocky Mountain goats and wild sheep were placed in the classification for exotic goats and exotic sheep (S. Ferguson, pers. comm.). The market value for exotic goats and sheep is $36, a price well below what could be expected to be the true

market value of Rocky Mountain goats and wild sheep in Montana. Placing an unrealistically low market value on wild game (such as Rocky Mountain goats and wild sheep) results in less tax revenues received by state and county governments.

NO ACTION:

Under the No Action Alternative, FWP and DoL would not have to inspect and monitor this game farm. The current status of tax payments for this property would remain for the No Action Alternative.

CUMULATIVE EFFECTS:

No cumulative impacts are expected on public services and taxes from the proposed game farm project.

COMMENTS:

No mitigation measures are recommended.

REFERENCES:

Ferguson, S., 1998. Property Assessment Division, Montana Department of Revenue, Helena, Montana. Personal communication (July 28, 1998) with Linda D. Priest, Northwest Resource Consultants, Helena, Montana.

HUMAN ENVIRONMENT

11. AESTHETICS/RECREATION Would Proposed Action result in:	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED	COMMENT INDEX
	UNKNOWN	NONE	MINOR	SIGNIFICANT		
a. Alteration of any scenic vista or creation of an aesthetically offensive site or effect that is open to public view?			X		No	11(a)
b. Alteration of the aesthetic character of a community or neighborhood?			X		No	11(a)
c. Alteration of the quality or quantity of recreational/tourism opportunities and settings?		X				

AFFECTED ENVIRONMENT:

The game farm site is located six miles southwest of Havre and is surrounded primarily by private land. Limited hunting of upland game birds and big game takes place on private and public land in the general area of the proposed game farm. Gopher and coyote hunting, and target practice at local rifle ranges occur on a year-round basis in this area (Anderson, pers. commun.; Calhoun, pers. commun.)

PROPOSED ACTION:

11(a) The visual character of the area may change as a result of the 8-foot high fence that has been constructed around the perimeter of the game farm. This impact would probably be most directed at persons residing in the game farm area. The impact is expected to be minor and most likely short term since fences are a common sight in the area.

NO ACTION:

No adverse impacts to aesthetics or recreation are expected under the No Action Alternative, unless the game farm fence remains in place.

CUMULATIVE EFFECTS:

No cumulative impacts are expected.

COMMENTS:

No mitigation measures are recommended.

REFERENCES:

Anderson, Don. 1999. Manager, Agricultural Experiment Station, personal communication with Chris Cronin, Maxim Technologies, on March 10, 1999.

Calhoun, James. 1999. Neighbor located 0.5-mile southeast of proposed game farm, personal communication with Chris Cronin, Maxim Technologies, on March 10, 1999.

HUMAN ENVIRONMENT

12. CULTURAL & HISTORICAL RESOURCES Would Proposed Action result in:	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED	COMMENT INDEX
	UNKNOWN	NONE	MINOR	SIGNIFICANT		
a. Destruction or alteration of any site, structure or object of prehistoric, historic, or paleontological importance?	X				Yes	12(a)
b. Physical change that would affect unique cultural values?		X				
c. Effects on existing religious or sacred uses of a site or area?		X				

AFFECTED ENVIRONMENT:

A file search was conducted by the State Historic Preservation Office (SHPO) for the proposed project area. Results of this search show that there are seven cultural sites on or immediately adjacent to the proposed game farm. These include rock cairns, tipi rings, lithic scatters, firehearths or roasting pits, and/or historic homesteads or farms (SHPO 1999).

PROPOSED ACTION:

12(a) According to SHPO (1999), due to the presence of cultural properties in the area, there is a possibility that the Proposed Action may impact these cultural sites. SHPO recommends that a reconnaissance survey be conducted prior to project initiation to determine if sites exist and if they would be affected.

NO ACTION:

No impacts to cultural resources are expected from the No Action Alternative unless other disturbances occur within the property.

CUMULATIVE EFFECTS:

No additional impacts from past, present and reasonably foreseeable activities near the proposed game farm are anticipated.

COMMENTS:

Required Stipulations: None.

Recommended Mitigation Measures:

If archeological artifacts are observed during construction of the game farm fence or from other activities, work should stop in the area and the discovery reported to the Montana Historical Society, Historic Preservation Office, Helena, Montana (406) 444-7715. If work stoppage in the area containing observed artifacts is not possible, record the location and position of each object, take photographs, and preserve the artifact(s).

REFERENCES:

Montana State Historic Preservation Office (SHPO), 1999. Letter from Philip Melton (SHPO, Helena, MT) to Daphne Digrindakis (Maxim Technologies, Inc.), dated February 25, 1999.

SUMMARY

13. SUMMARY Would the Proposed Action, considered as a whole:	POTENTIAL IMPACT				CAN IMPACT BE MITIGATED	COMMENT INDEX
	UNKNOWN	NONE	MINOR	SIGNIFICANT		
a. Have impacts that are individually limited, but cumulatively considerable? (A project or program may result in impacts on two or more separate resources which create a significant effect when considered together or in total)		X				
b. Involve potential risks or adverse effects which are uncertain but extremely hazardous if they were to occur?			X		Yes	13(b)
c. Potentially conflict with the substantive requirements or any local, state, or federal law, regulation, standard or formal plan?		X				
d. Establish a precedent or likelihood that future actions with significant environmental impacts would be proposed?	X					13(d)
e. Generate substantial debate or controversy about the nature of the impacts that would be created?			X		Yes	13(d)

PROPOSED ACTION:

13(b) There is a potential of domestic elk carrying or becoming infected with a contagious wildlife disease or parasite such as tuberculosis, chronic wasting disease, or meningeal worm and then coming in contact (through-the-fence, nose-to-nose, nose-to-soil, or ingress/egress) with wild deer, elk, or other wildlife. Release of a contagious disease in the wild could severely impact native wildlife populations. It is also possible that disease and parasites carried by wild elk could be introduced to domestic elk. Spread of a contagious wildlife disease may directly or indirectly (depending on the nature of the disease) affect the human environment by reducing the number of wild deer and elk available for hunting, or exposing hunters to diseases that are contagious to humans as well.

13(d) The nature of impacts to wildlife from elk game farms is currently under debate in Montana and other states. The following issues are of the greatest concern with respect to game farms:

- Disease transmission from game farm elk to wildlife is possible if the game farm elk are diseased and have an opportunity to come into contact with wild elk or deer.
- Hybridization of Montana's game species resulting from the ingress/egress of animals.
- Potential for wild animals to ingress into the game farm. Ingressing elk and deer are generally killed, typically by FWP wardens, to prevent potential disease transmittal. Ingressing mountain lions and black bears may be immobilized and removed.
- Theft of wild animals for financial gain on game farms.
- Ethics of shooting domestic elk, deer, or other animals in a game farm enclosure.
- Public safety from shooting operations.

Some of these issues are particularly controversial when game farms block migration routes or consume significant areas of land historically utilized by wild game. Inadequate perimeter fencing and fence monitoring by the game farm operator can also lead to ingress/egress events and nose-to-nose contact between wild game and game farm animals. Because the proposed

Diamond K Elk Enterprises Ranch 2 Game Farm area would not significantly block big game migration routes or consume a significant portion of land utilized by wild game, the controversial nature of the Proposed Action is minor.

SUMMARY EVALUATION OF SIGNIFICANCE CRITERIA

a. Does the Proposed Action have impacts that are individually minor, but cumulatively considerable? (A project may result in impacts on two or more separate resources which create a significant effect when considered together or in total.)

Yes. The proposed operation of this game farm would place 400 adult elk and approximately 400 adult cattle in a relatively small area from late fall to early spring. In addition there are 40 adult elk on an existing adjacent 40-acre game farm, and 40 elk could be held at another proposed 65-acre game farm adjacent to this site. This would result in over 400 adult elk living within a 2.5 square mile area on a year-long basis and up to 400 adult cattle held on the proposed game farm for several months during fall, winter and spring. There would be opportunity for cumulative impacts related to a high domestic elk population and a high domestic cattle population being contained in a small area.

b. Does the Proposed Action involve potential risks or adverse effects which are uncertain but extremely hazardous if they were to occur?

Yes. An unlikely, but extremely hazardous event should it occur, would be the spread of a disease or parasite from domestic elk to wild elk or deer. The risk of this event occurring can be reduced by following the mitigation measures listed in Section 5 (*Fish/Wildlife*) and Section 8 (*Risk/Health Hazards*) of this EA. Due to the proposed dual use of the game farm by game farm animals and cattle, and the proposed excessive stocking rate, there is increased opportunity for disease and parasite outbreaks and interspecific transmission of diseases and parasites between animals.

The recent confirmation of CWD in several game farms in other states and Saskatchewan raises concerns about the potential movement of infected animals and the difficulty in diagnosing the disease in living animals. There is some possibility the disease may be transmitted through contact with land where infected animals have pastured. On November 11, 1998, the Montana Board of Livestock issued an emergency rule that prevents wild or captive cervids from being imported or transported from a geographic area or game farm where CWD is endemic or has been diagnosed. Any imported animals must have resided in the exporting herd for a minimum of 12 months immediately prior to importation, or a satisfactory and complete documented animal movement history from (birth) farm or origin must be furnished. In addition, the rule requires the animals to have undergone CWD surveillance for a period of 12 months. CWD rules have been formally adopted by the Board (March 19, 1999) and filed with the Secretary of State's office. The rules should be published in the MAR on April 8, 1999 which will be the effective date for the rules.

c. Description and analysis of reasonable alternatives (including the no action alternative) to the proposed action whenever alternatives are reasonably available and prudent to consider and a discussion of how the alternatives would be implemented:

No Action Alternative: The No Action Alternative would avoid many of the potential impacts listed above. This site would likely be used to for cropland and to pasture domestic livestock following the harvest.

d. Evaluation and listing of mitigation, stipulation, or other control measures enforceable by the agency or another government agency:

This section provides an analysis of impacts to private property by proposed restrictions or stipulations in this EA as required under 75-1-201, MCA, and the Private Property Assessment Act, Chapter 462, Laws of Montana (1995). The analysis provided in this EA is conducted in accordance with implementation guidance issued by the Montana Legislative Services Division (EQC, 1996). A completed checklist designed to assist state agencies in identifying and evaluating proposed agency actions, such as imposed stipulations, that may result in the taking or damaging of private property, is included in Appendix A. Mitigation measures described in this section address both minor and significant impacts. FWP would require stipulations to mitigate all potentially significant impacts from the Proposed Action. Most potential minor impacts from the Proposed Action are addressed as mitigation measures that are strongly recommended, but not required.

REQUIRED STIPULATION #1

(1) Provide escort to anyone entering the game farm enclosure (e.g., gas pipeline personnel) when game farm animals are present.

This stipulation is imposed to mitigate potential risk to wildlife posed by the proposed game farm. Risk to wildlife from contact between game farm animals and wild game is potentially significant due to the site being located in an area currently utilized by wild game.

Restriction on Private Property Use

This stipulation does not provide for any additional restrictions on private property use.

Alternatives

Do not provide escort to people entering game farm enclosure.

This alternative would not adequately address the risk to wildlife due to potential ingress/egress situations.

Benefits from Imposing the Stipulation

This stipulation is imposed to mitigate potentially significant impacts to wildlife health.

Types of Expenditures the Stipulation Would Require

The stipulation would not require any additional expenditures at the game farm since the game farm operator resides at the site.

Stipulation's Effect on Property Values None.

REQUIRED STIPULATION #2

(2) Shooting in the game farm enclosure using high-powered rifles must not occur in the direction of residences that are near the game farm. A guide or representative of the ranch familiar with the terrain must accompany each shooter to be sure that shooting does not occur toward the residences described above.

Restriction on Private Property Use

This stipulation does not provide for any additional restrictions on private property use.

Alternatives

Do not restrict the direction of shooting and allow unsupervised shooting.

This alternative would not adequately address the increased risk to public health and safety due to the proximity of residences and the highway to the game farm.

Benefits from Imposing the Stipulation

This stipulation is imposed to mitigate potentially significant impacts to public health and safety from shooting operations at the proposed game farm.

Types of Expenditures the Stipulation Would Require

The stipulation would not require any additional expenditures at the game farm, assuming the guide that would accompany each shooter would be the game farm operator that would already be present at the site.

Stipulation's Effect on Property Values None.

PART III. NARRATIVE EVALUATION AND COMMENT

Wildlife use of the area and potential for through-the-fence contact with game farm animals (consider year-around use, traditional seasonal habitat use, and location of travel routes and migration corridors).

Through the fence contact: The proposed game farm is located in low density mule deer, white-tailed deer and pronghorn antelope habitat. There is also the possibility that an occasional wild elk or moose may pass through this area. Wild deer, pronghorn and elk would be expected to be attracted to the game farm by their domestic counter parts. Nose-to-nose contact is most likely to occur between wild and domestic animals of the same species. Transmission of disease or parasites may occur during nose-to-nose contact, nose-to-body contact, and by contacting vegetation and feces along the fence line. Disease transmission may occur from wild ungulates to game farm animals and from game farm animals to wild ungulates. Diseases such as tuberculosis are highly contagious and can be easily transmitted between domestic and wild big game species. Tuberculosis can also be transmitted to humans and is a serious health risk.

Chronic Wasting Disease (CWD) has been documented in game farm elk in at least three states and one Canadian province. Montana now has two trace herds but there is no evidence that CWD is present in wild deer or elk. There is no diagnostic test for CWD in live animals and confirmation of the disease can only be made upon post mortem necropsy. However, CWD disease is believed to be confined to Cervids and has not been documented in Bovids.

White-tailed deer are a normal host to meningeal worm (*Pneumostrongylus tenuis*). This brain worm is found in the meninges of the brain and is usually clinically silent in deer. Meningeal worm occurs in white-tailed deer from Minnesota and eastward to the coast. Moose and elk exposed to meningeal worm suffer neurologic disorder and eventually die. In many areas of range overlap, there appears to be an inverse relationship between white-tailed deer and moose density; suggesting that as deer numbers increase the incident of meningeal disease in moose also increases resulting in a lower moose population. ARM 32.4.502(1)(a) became effective in January, 1999 and prohibits the importation of white-tailed deer and moose into Montana until such a time as a reliable diagnostic technique is available for the detection of meningeal work parasites and larvae.

Bighorn sheep and mountain goats would be released in the proposed game farm, and they could potentially carry A Strain *Pastuerella*, and lungworms (*Protostrongylus* spp.). Bighorn sheep infected with lungworms are extremely susceptible to pneumonia resulting from exposure to A Strain *Pastuerella* found in domestic sheep and goats (Keith Aunne, pers. commun.). Two species of *Protostrongylus* noted to cause catastrophic die-offs of bighorn sheep have also been found in mountain goats and Dall sheep (Schmidt and Gilbert 1978, Chapman and Feldhamer 1982). Although the potential for interspecific lungworm infection exits, the proposed game farm site is sufficiently far from wild sheep populations that it is unlikely there would be any contact between game farm sheep and goats with wild sheep. Diagnostic tests for *Pastuerella* are available and can be conducted by taking nasal swabs from restrained live animals. However, a negative test does not necessarily confirm the absence of A Strain *Pastuerella* in sheep and goats that would be released at the proposed game farm.

Risk of disease transmission can be reduced by maintaining the integrity of the enclosure fence, by maintaining a healthy domestic big game population, and by following the above listed mitigation recommendations. If the game farm is managed properly, the risk of disease transmission from domestic game farm animals to wild ungulates would likely be minimal.

Potential for escape of game farm animals or ingress of wildlife (consider site-specific factors that could reduce the effectiveness of perimeter fences built to standards outlined in Rule 12.6.1503A, including steepness of terrain, winter snow depths/drifting, susceptibility of fences to flood damage, etc.).

Fence integrity: Fence construction would be completed in accordance with requirements of FWP under ARM 12.6.1531. The game farm is located on level cropland and the proposed fence line crosses slight slopes only in a few areas. It will would not encounter steep hills or hazard trees. Overall, the site potential for fencing these pastures is excellent.

The enclosure site is located at an elevation of about 2,600 feet in a broad open area. The expected snow levels during winter would vary greatly in relation to the amount of snowfall, and wind velocity and direction associated with storms passing through this area. This area has the potential to receive considerable snowfall in single storm events and cumulatively during the winter. One to 2 feet of compacted snow on the ground can be expected in at least some winters. Snow depth in drifted areas may be even greater. Effective fence height could be considerably reduced under these conditions of drifted snow.

Proportion (%) of the total habitat area currently used by wildlife that will be enclosed or otherwise impacted.

The fencing of 869 acres to exclude wild ungulates is not a significant loss of habitat. Overall, the proposed game farm represents less than 1 percent of the available deer and antelope habitat in this area. However, there is an existing 40-game farm at the Kafka ranch headquarters on the east side of the proposed game farm site. There also is a proposal to build a third game farm in this immediate vicinity that would create a 65-acre enclosures Cumulatively there would be 975 acres of land within a 2.5 square mile area fenced to exclude wild ungulates. Within these enclosures there could potentially be 480 adult elk plus 10 pronghorn antelope, 10 mule deer, 10 white-tailed deer, 10 bighorn sheep and 10 mountain goats. The proposed game farm area may become a significant influence on the home range use of one or more deer and may create a minor barrier for passage of wild ungulates.

Narrative Description and Evaluation of the Cumulative and Secondary Effects on Risk/Health Hazards Resources (Attach additional pages of narrative if needed):

There are no cumulative or secondary effects anticipated with this project on Risk/Health Hazards.

REFERENCES:

Aunne, Keith. 1998. MT Fish, Wildlife and Parks Biologist. Personal communication with Craig Knowles, FaunaWest Wildlife Consultants. March 1998.

Chapman, J.A. and G.A Feldhamer. 1982. Wild mammals of North America. John Hopkins Univ. Press, Baltimore. pp 1008-1019 and 1036-1055.

Schmidt, J.L. and D.L. Gilbert. 1978. Big game of North America. Stackpole Books, Harrisburg, PA. pp 149-171.

United States Department of the Interior (USDI). 1998. Draft Environmental Impact Statement for the Interagency Bison Management Plan for the State of Montana and Yellowstone National Park.

PART IV. EA CONCLUSION

1. **Based on the significance criteria evaluated in this EA, is an EIS required? YES / NO**

   No. The appropriate level of analysis for the Proposed Action is a mitigated EA because:

   - all impacts of the Proposed Action have been accurately identified in the EA; and
   - all identified significant impacts would be mitigated to minor or none.

2. **Describe the level of public involvement for this project if any and, given the complexity and the seriousness of the environmental issues associated with the Proposed Action, is the level of public involvement appropriate under the circumstances?**

   Upon completion of the Draft EA, a notice is sent to adjoining landowners, local newspapers, and other potentially affected interests, explaining the project and asking for input during a 21-day comment period which extends from March 29, 1999 until 5 pm April 19, 1999. The Draft EA is also available to the public from the FWP office in Havre at the address and phone listed below and in the *Summary* section of this EA (p. 2), and through the State Bulletin Board System during the public comment period.

3. **Duration of comment period if any:** 21 days

4. **Name, title, address and phone number of the Person(s) Responsible for Preparing the EA:**

Fish, Wildlife and Parks

Shane Reno, FWP Region 6 Game Warden
2165 Hwy 2 East
Havre, Montana 59501
(406) 265-6177

Al Rosgaard, FWP Region 6 Wildlife Biologist
2165 Hwy 2 East
Havre, Montana 59501
(406) 265-6177

Karen Zackheim, FWP Game Farm Coordinator
Enforcement Division
1420 E. Sixth Avenue
Helena, MT 59620

Maxim Technologies, Inc.

Daphne Digrindakis, Project Manager
Chris Cronin, Environmental Specialist
Doug Rogness, Hydrologist
Mike Cormier, Soil Scientist
Val Jaffe, GIS and Graphics

FaunaWest Wildlife Consultants

Craig Knowles, Wildlife Biologist

APPENDIX A

PRIVATE PROPERTY ASSESSMENT ACT CHECKLIST

The 54th Legislature enacted the Private Property Assessment Act, Chapter 462, Laws of Montana (1995). The intent of the legislation is to establish an orderly and consistent process by which state agencies evaluate their proposed actions under the "Takings Clauses" of the United States and Montana Constitutions. The Takings Clause of the Fifth Amendment of the United States Constitution provides: "nor shall private property be taken for public use, without just compensation." Similarly, Article II, Section 29 of the Montana Constitution provides: "Private property shall not be taken or damaged for public use without just compensation..."

The Private Property Assessment Act applies to proposed agency actions pertaining to land or water management or to some other environmental matter that, if adopted and enforced without compensation, would constitute a deprivation of private property in violation of the United States or Montana Constitutions.

The Montana State Attorney General's Office has developed guidelines for use by state agency to assess the impact of a proposed agency action on private property. The assessment process includes a careful review of all issues identified in the Attorney General's guidance document (Montana Department of Justice 1997). If the use of the guidelines and checklist indicates that a proposed agency action has taking or damaging implications, the agency must prepare an impact assessment in accordance with Section 5 of the Private Property Assessment Act. For the purposes of this EA, the questions on the following checklist refer to the following required stipulation(s):

(1) Provide escort to anyone entering the game farm enclosure (e.g., gas pipeline personnel) when game farm animals are present.

(2) Shooting in the game farm enclosure using high-powered rifles must not occur in the direction of residences or the section of Highway 87 located within a 1-mile radius of the game farm. A guide or representative of the ranch familiar with the terrain must accompany each harvester to be sure shooting does not occur toward the nearby residences or highway.

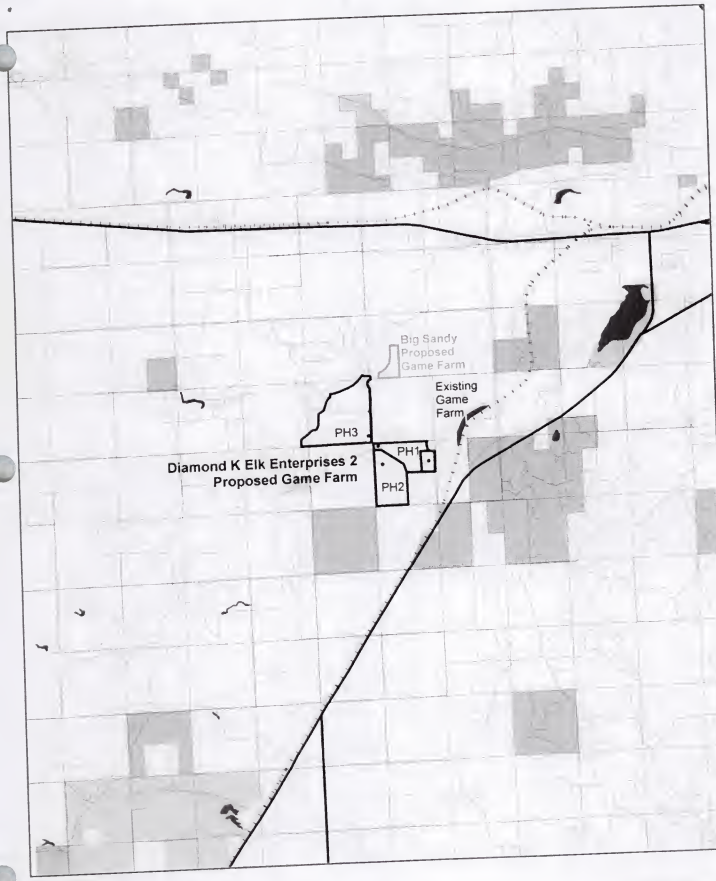
PRIVATE PROPERTY ASSESSMENT ACT CHECKLIST

DOES THE PROPOSED AGENCY ACTION HAVE TAKINGS IMPLICATIONS UNDER THE PRIVATE PROPERTY ASSESSMENT ACT?

YES	NO		
___	X	1.	Does the action pertain to land or water management or environmental regulation affecting private real property or water rights?
___	X	2.	Does the action result in either a permanent or indefinite physical occupation of private property?
___	X	3.	Does the action deprive the owner of all economically viable uses of the property?
___	X	4.	Does the action deny a fundamental attribute of ownership?
___	X	5.	Does the action require a property owner to dedicate a portion of property or to grant an easement? [If the answer is **NO**, skip questions 5a and 5b and continue with question 6.]
___	_____	5a.	Is there a reasonable, specific connection between the government requirement and legitimate state interests?
___	_____	5b.	Is the government requirement roughly proportional to the impact of the proposed use of the property?
___	X	6.	Does the action have a severe impact on the value of the property?
___	X	7.	Does the action damage the property by causing some physical disturbance with respect to the property in excess of that sustained by the public generally? [If the answer is **NO**, do not answer questions 7a-7c.]
___	_____	7a.	Is the impact of government action direct, peculiar, and significant?
___	_____	7b.	Has government action resulted in the property becoming practically inaccessible, waterlogged, or flooded?
___	_____	7c.	Has government action diminished property values by more than 30% and necessitated the physical taking of adjacent property or property across a public way from the property in question?

Taking or damaging implications exist if **YES** is checked in response to question 1 and also to any one or more of the following questions: **2, 3, 4, 6, 7a, 7b, 7c**; or if **NO** is checked in response to questions 5a or 5b.

If taking or damaging implications exist, the agency must comply with § 5 of the Private Property Assessment Act, to include the preparation of a taking or damaging impact assessment. Normally, the preparation of an impact assessment will require consultation with agency legal staff.



N

0 Miles 1.5

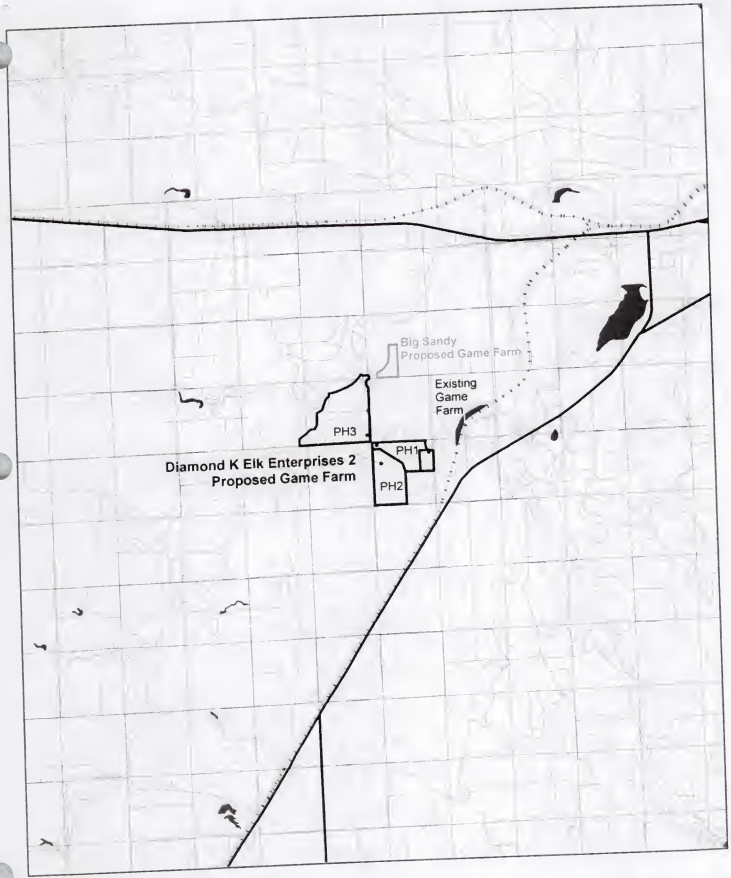
Note: Data Derived From Montana Fish, Wildlife And Parks 1:100,000 And 1:250,000 Scale Maps. Base Data Derived From US Census Bureau 1:100,000 Scale TIGER Line Files And 1:100,000 US Bureau of Land Management Maps. Contours Derived From 90 Meter USGS DEMs And Contour Intervals Equal 200 Feet

Proposed Game Farm
Adjacent Proposed Game Farm

Private Lands
Bureau of Land Management
US Fish & Wildlife
Rocky Boy Indian Reservation
State Lands

Land Ownership
Proposed Game Farm EA
Diamond K Elk Enterprises 2
Hill County, Montana
FIGURE 4

MAXIM 9731687 430



N

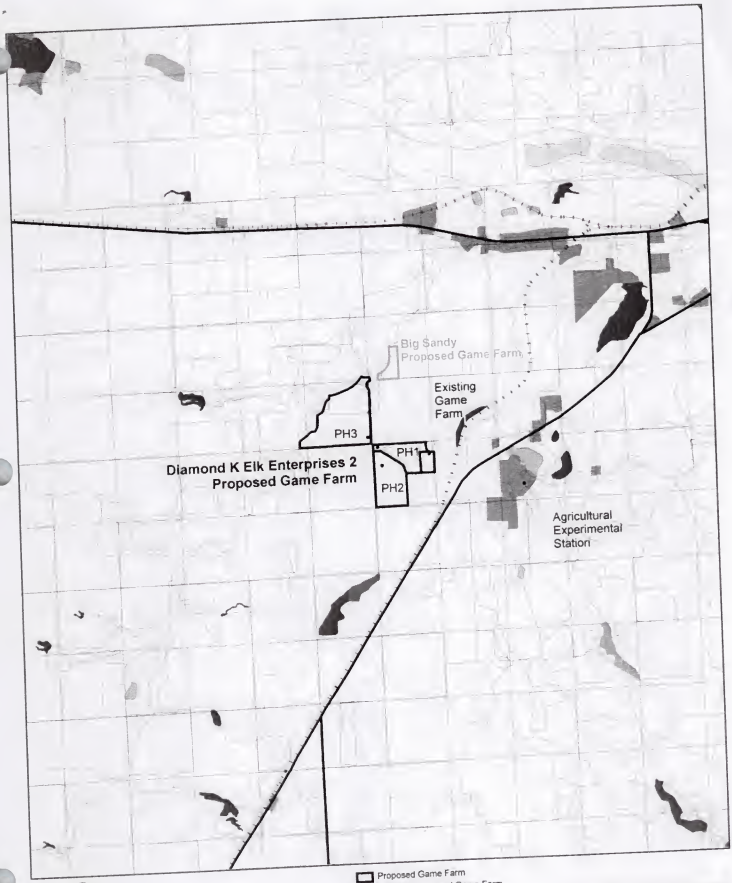
0 Miles 1.5

Note: Data Derived From Montana Fish, Wildlife And Parks 1:100,000 And 1:250,000 Scale Maps. Base Data Derived From US Census Bureau 1:100,000 Scale TIGER Line Files And 1:100,000 Scale US Bureau of Land Management Maps. Contours Derived From 90 Meter USGS DEMs And Contour Intervals Equal 200 Feet

Proposed Game Farm
Adjacent Proposed Game Farm
Mule Deer - General Range

Big Game Distribution
Proposed Game Farm EA
Diamond K Elk Enterprises 2
Hill County, Montana
FIGURE 3

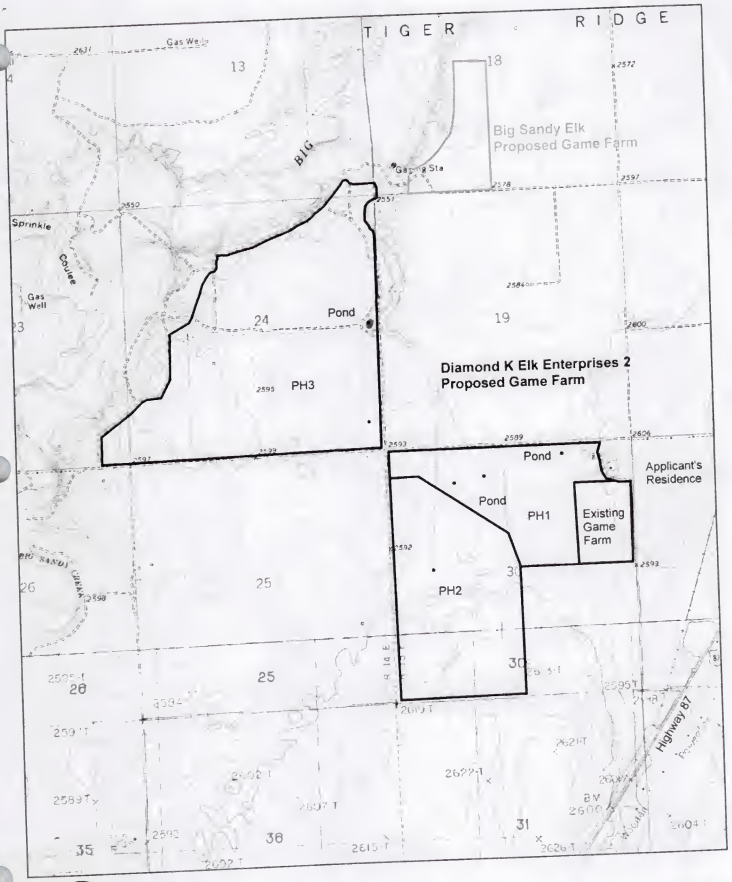
MAXIM 9731687.430



Note: Land Use Data Derived From Montana Public Lands US Bureau Of Land Management 1:250,000 Scale Maps. Base Data Derived From US Census Bureau 1:100,000 Scale TIGER Line Files And 1:100,000 Scale US Bureau of Land Management Maps. Contours Derived From 90 Meter USGS DEMs And Contour Intervals Equal 200 Feet.

MAXIM 9731687.430

Land Use / Land Cover
Proposed Game Farm EA
Diamond K Elk Enterprises 2
Hill County, Montana
FIGURE 2



0 Feet 2000

Topographic Base Derived From
USGS 1 24,000 Scale Maps

Site Map
Proposed Game Farm EA
Diamond K Elk Enterprises 2
Hill County, Montana
FIGURE 1

MAXIM 9731687 430